DOCUMENT RESUME

ED 048 814 48 FL 002 170

AUTHOR	Capelle, Guy C.; And Others
TITLE	Development of Computer-Assisted Observational Systems for Teacher Training. Final Report.
INSTITUTION	Michigan Univ., Ann Arbor. Center for Research on Language and Language Behavior.
SPONS AGENCY	Institute of International Studies (DHEW/OE), Washington, D.C.; Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-9-7740
PUB DATE	31 Jan 71
CONTRACT	OEC-0-9-097740-3743(014)
NOTE	73p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	Behavioral Science Research, College Programs, *Computer Oriented Programs, Cost Effectiveness, *Educational Research, *Interaction Process Analysis, Language Instruction, Methods Research, *Modern Languages, Program Effectiveness, Quality Control, Student Behavior, Teacher Behavior, *Teacher Education, Teaching Methods

ABSTRACT

This report describes initial steps taken in a research project aimed at gaining insight into the nature of effective foreign language teaching. Two systems for observing and describing classroom behavior of teachers and students were developed in this experiment. These systems were used to observe university-level French classes. Data collected from the observations are analyzed to produce profiles of typical classroom behavior and also to attempt to differentiate between behaviors of more effective and less effective teachers. The authors comment on the potential application of the systems in teacher training programs. More than 20 statistical tables are included and serve as the basis for concluding remarks. A bibliography is provided. (RL)

ED048814

January 31, 1971

Title III Sec. 602, NDEA
PA-48-Bureau No. 9-7740

FINAL REPORT

Contract No. OEC-0-9-097740-3743(014)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

DEVELOPMENT OF COMPUTER-ASSISTED OBSERVATIONAL SYSTEMS FOR TEACHER TRAINING

Guy C. Capelle, Robert J. Jarvella, and Eleanor Revelle

Center for Research on Language and Language Behavior
The University of Michigan
220 E. Huron
Ann Arbor, Michigan 48108

Office of Education
Institute of International Studies
U.S. Department of Health, Education, and Welfare

FL002 176

DEVELOPMENT OF COMPUTER-ASSISTED OBSERVATIONAL SYSTEMS FOR TEACHER TRAINING[1]

Guy C. Capelle, Robert J. Jarvella,[2] and Eleanor Revelle

Center for Research on Language and Language Behavior
The University of Michigan

Two systems for observing classroom behavior of teachers and students were developed. These systems were used to observe university-level classes in which French was being taught to English-speaking undergraduates. Data collected from the observations were analyzed to produce profiles of typical classroom behavior and also to attempt to differentiate between behaviors of more effective and less effective teachers. The systems appear to have considerable potential for teacher-training.

Introduction

General Objectives of the Research

The present research is to be considered as an initial step in a long-term project aimed at gaining insight into the nature of effective foreign language teaching. Investigators have attempted to describe and quantify teachers' classroom behavior in order to correlate it with some measure of effectiveness, usually as reflected in student achievement. This is the approach which has been followed here. If it proves adequate, it should eventually be possible a) to determine from the observational data what constitutes effective teaching, b) to tailor teacher training to the needs of individual trainees, and 3) to assess the result of training by comparing the trainees' behavior before and after training.

In accordance with these long-range goals, the first aim of the present research was to develop, test, and refine instruments directed specifically at describing verbal behavior in the language classroom situation. It was decided to limit these instruments initially to handling the particular problems of the beginning level of language teaching.

Need for This Research

Although Rosenshine (1970) reports some 51 studies based on the observation of classroom bheavior, which he considers the foremost in recent years, not a single study has to do with the foreign language classroom. Apart

from two adaptions of the Flanders system (Moskowitz, 1966, and Jarvitts, the investigators are not aware of any observational system which could describe an essential aspect of language teaching, the use of the foreign language in the classroom. As Biddle remarks in the conclusion of his review of methods and concepts in classroom research (1967) "...the major field as yet untapped in classroom research is that of linguistics. Linguistic usage differentiates three domains of concepts: semantics (the study of meaning), phonology (the study of sounds), and syntax (the study of language forms and sequences). From a linguistic point of view, the majority of the codes suggested in the studies reviewed are semantic in orientation."

It appeared to the present investigators that the study of language use in the classroom (amount, type, correctness, sequence) was an indispensable addition to any one of the existing approaches if one desired insight into the teaching of a subject which is at the same time the medium through which the teaching is done. It was also noted that none of the existing systems seemed adequate to describe some of the techniques most widely used in language teaching (repetition, choral responses, teaching the foreign language or teaching about the foreign language, use of the student's native language, drills).

This research thus appears as an application to the foreign language classroom of some of the studies on classroom climate as well as an effort to analyze some of the problems specific to foreign language teaching.

Basic Assumptions

The belief that new insight into the nature of effective language teaching can best be gained by making detailed behavioral records of what teaching is is based on the following assumptions:

--that one of the best ways to learn what teaching is is to study classroom behavior,

--that this behavior can be observed, i.e., that it can be categorized into discrete units and quantified.

--that the observable teacher behavior has an effect on student learning.

--that this effect is reflected in independent, obtainable measures of teacher effectiveness.

Overview of Literature

Investigators have attempted to clarify teacher-student interaction in the classroom in two main areas: cognitive processes (Smith & Meux, 1962; Gallagher, 1965; Bellack, Hyman, Kliegard & Smith, 1965) and social emotional climate (mostly Flanders).

Smith and Meux (1962) used a logical model to analyze teaching. Gallagher (1965) used an observational system in which a component was a thinking operation modeled on Guilford's paradigm for the structure of the intellect. Bellack, et al. (1965) used Wittgenstein's model of language games to analyze the teaching process into cyclical patterns of pedagogical moves.

All three types of research focussed on the interactive sequence of moves and turned away from statis modes. But, whereas Smith and Meux and Gallagher tried to anticipate the sequences, Bellack, et al. attempted to construct them from the observed sequence of categories. The defining of larger units in terms of smaller units seems the best way to preserve reliability and this approach will be followed by the present investigators when they attempt to determine the significant patterns of language teaching.

From H. H. Anderson to Ned A. Flanders, a generation of investigators has based its model on social psychology, and studied classroom social-emotional climate, those "generalized attitudes toward the teacher and the class that the pupils have in common in spite of individual differences", attitudes whose development is "an outgrowth of classroom social interaction" (Flanders, 1966).

Flanders presents the most comprehensive program of classroom observation using a system of ten analytic, molecular categories reflecting immediately observable teacher and student activities whose frequencies are plotted on Markovian matrices to preserve their sequential properties. His analysis of teacher-student interaction in the classroom leads mostly to the testing of the effects of "direct" or "indirect" teacher influence on students--"indirect"--when the goals and the type of teaching activity change.

Part of the present research draws heavily upon Flanders' work. It also greatly benefited from research conducted at the Center for Research on Language and Language Behavior, University of Michigan, by Melvyn I. Semmel, et al. (1968), who developed a computer-assisted teacher training system (CATTS). Their techniques for training observers and checking reliability, based on the use of a specially developed computer program (CONCODE), provided imaginative and time-saving devices.

Hypotheses of Teacher Effectiveness in this Study

In this preliminary study the hypotheses tested concerned primarily the validity and predictive power of the two observational systems developed to describe a) teacher influence, b) teacher language teaching techniques, and c) the types of language used in the classroom.

a. Teacher influence: The general hypothesis is based on Flanders' concepts for describing teacher influence (Flanders, 1965). It was

hypothesized that encouraging students to speak, exerting indirect influence and showing concern for student participation and flexibility in teaching would maximize effectiveness.

b. Teacher techniques: The general hypothesis here is that techniques stimulating active language use and techniques confronting students with problems to solve in the foreign language would contribute to greater effectiveness. This implies that individual answers to questions are more instructive than mere repetition, or choral practice, that reciting is more productive than lecturing; that the use of "wh" questions results in more meaningful learning than the use of mere "yes/no" questions.

c. Amount, nature and type of language use. It was hypothesized that for the best learning to occur, the use of the foreign language should be maximal; that spontaneous language use by the students should be encouraged; and finally that the correctness of use is an important factor of effectiveness.

Three independent measures of teacher effectiveness were to be correlated with a measure of predicted effectiveness based on each hypothesis:

a. Classroom achievement measured by examination soon after the taking of observations;

b. student ratings of teachers to be obtained at the end of formal instruction;

c. observers' ratings based on a detailed evaluation of teacher behavior.

Of these three measures, student achievement was considered the most acceptable criterion. If the two observational systems were found reliable, could discriminate between teachers and serve as predictors of effectiveness, they could be used as valid instruments in the further stages of the long-term research project.

Description of the Category Systems

An observational system was seen as requiring categories which are unambiguously defined, mutually exclusive, and adequately representative of the behavior to be described. It was also intended that such a system be suitable for coding behavior in real time. An additional, self-imposed constraint was that it be a low-inference system, that is, that it employ analytic, specific and readily identifiable categories, thus minimizing observers' subjective judgments and permitting comparable use of the system by other research teams. Detailed criteria were to be given to observers to facilitate category identification and maximize reliability.

Three observational systems had originally been planned for use: a) Flanders' ten-category system of interaction analysis to measure verbal behavior, as reflected in interaction; b) a system specially designed to record verbal behavior as an indication of teaching techniques; c) a third system designed to reflect the form and quality of the verbal behavior under investigation. Because of the overlap between Flanders' system and that aimed at reflecting teaching techniques, these first two proposed systems were collapsed into one (OS1). This new system was designed to capture esssential aspects of the foreign language classroom, while preserving most of the potential offered by Flanders' system. Flanders' first and third categories, 1) Teacher accepts feelings, and 3) Teacher accepts or uses ideas of students, were so infrequent that the were collapsed: the possibilities of L_2 expression would still be so limited at this stage of study that students would rarely word original thoughts in the foreign language, and teachers expand them. In addition, short praise tends to be used so frequently that it often becomes automatic and loses some of its reward value. Extended praise, on the other hand, could not be captured by a sequence of short praise tallies as it rarely lasts more than 3 sec. because of limitations in grammar and vocabulary at the beginning level. A cue in a drill situation must be kept distinct from an order. Likewise, shaping of student response, another typical language teaching activity, needs to be categorized as separate from lecturing. These and other differences with Flanders' categories will become apparent in the following description of the categories prepared for the observers.

Description of the First Observational System (OS)

As in Flanders' model, the OS1 system makes use of 10 macro-categories: seven to indicate teacher behavior; two for student behavior; and a tenth for silence or confusion. The seven categories describing teacher behavior reflect to a considerable degree the "indirect-direct influence" distinction drawn by Flanders: the first four generally encourage student participation while the next three are more indicative of teacher influence and control.

Seven of the ten macro-categories, however, are further subdivided to more adequately reflect foreign language teaching interaction and techniques. The macro-categories facilitate the coder's task by grouping together categories of the same type for a first decision. Then, sharper distinctions are made within categories for a second decision. Thus, a question by the teacher is categorized as 4 and is then more finely differentiated as either a conversation question, 4_1, or a question about the target language, 4_2.

Category 1 is used to reflect positive and encouraging teacher comments. Its occurrence was fairly infrequent in the observational data of this study. More finely differentiated, sub-category 1_1 indicates a) a teacher's acceptance of student feelings, b) a teacher's use of student ideas, and c) a teacher's tension releasing jokes or comments. Sub-category 1_2 indicates a teacher's extensive praise of student responses, or encouragement to respond:

Examples of category 1_1:

"Je sais que c'est difficile..."
"Vous comprenez tout ce que je dis aujourd'hui."
"Je suis content que vous aimiez tant ce dialogue."
"Est-ce que vous comprenez?" (directed at the class in general and showing real interest, i.e., not rhetorical)
"Pardon."
"Excusez-moi."

Examples of category 1_2:

"C'est une très bonne question."
"Oui, Monsieur." (Calling on student volunteering)
"Qui peut répondre?"
"Avez-vous des questions à me poser?"
"Pardon?"
"Oui."
"Vous ne comprenez pas la question?": (directed at one student as encouragement to ask about what he does not understand)

Category 2 is used to describe teacher response to student answers. It was employed quite frequently in the coding of this study's data. This category is also broken down into two parts: 2_1 indicates short words of praise, and 2_2 denotes teacher reinforcement of student response by repetition or indicates a teacher's final move. The most frequent occurrence of category 2_2 was in drill situations although it also occurred after students' response to teachers' questions.

Examples of category 2_1:

"Oui, c'est ça."
"Très bien."

Examples of category 2_2:

Teacher repeats student's correct response as a final mode.
Teacher repeats correct response for repetition.
Teacher gives correct response without intent to correct a preceding error.

Category 3 describes teacher model-giving behavior, generally within a drill situation. The subcategory 3_1 denotes a teacher's model or example. Examples embedded within a lecture sequence are recorded as part of the lecture (5_1) rather than separately as examples. Subcategory 3_2 indicates a cue for student response in a drill sequence.

Examples of category 3_1:

Teacher gives model for a drill.
Teacher gives a model for repetition.
Teacher reads from text.

Examples of category 3_2:

Teacher gives cue word in substitution drill.
Teacher gives sentence to be transformed.
Teacher gives sentence to be completed.
Teacher asks question whose answer is highly restricted in form.

Category 4 is used to indicate teacher probes. These questions may be of a conversational nature (4_1) or may refer to the target language (4_2).

Examples of category 4_1:

"Quelle heure est-il?"
"Quel cours suivez-vous à une heure?"
"Qu'est-ce que c'est qu'une librairie?"

Examples of category 4_2:

"Quel est l'infinitif de ce verbe?"
"Que veut dire le mot 'délicat?'"
"Comment traduisez-vous cette phrase?"

Category 5 is undifferentiated and is used to indicate teacher lecturing. This includes giving facts or opinions and asking rhetorical questions.

Examples of this category include:

Teacher lectures about language, culture, etc.
Teacher answers student initiated questions (9_1, 9_2).
Teacher answers his own questions.
Teacher rewords student response where student response is the expected one rather than a novel idea.

"Vous comprenez?" (no answer expected from students; automatic and showing no real concern).

Category 6 is also undifferentiated and is used to describe teacher directions. This also includes indications about general classroom procedures.

Examples of this category include:

"Ouvrez vos livres à la page..."
"Traduisez cette phrase en anglais."
"Répétez." "Encore." "Tout le monde."
"Employez le conditionnel."
"Nous allons étudier le verbe 'suivre.'"
"Demain nous finirons ces exercices."

Category 7 is used to describe teacher corrections. The subscategory 7_1 indicates the shaping of behavior whether through correction of student responses or through giving clues. The subcategory 7_2 is used to describe teacher rejection of student response or behavior. It would also be used to indicate negative jokes made at students' expense.

Examples of category 7_1:

Teacher corrects student in process of responding.
Teacher corrects pronunciation with proper mode.
Teacher provides first words of response as a clue.
Teacher gives clues to aid student in correcting himself.

Examples of category 7_2:

"Non, ce n'est pas ça."
"Est-ce que c'est le conditionnel?" (as response to student's incorrect answer)
"Il faut travailler un petit peu."

Category 8 is used to indicate student responses. It is broken down into three parts: 8_1 indicates individual repetition; 8_2 indicates choral repetition or answers; and 8_3 indicates individual answers.

Examples of category 8_1:

Student repeats drill model or correct response.
Student reads from text.
Student repeats after teacher reads.

Examples of category 8_2:

Choral repetition of drill model or correct response.
Choral reading or dialogue repetition.
Choral response in a drill situation.

Examples of dategory 8_3:

Student responds in a drill situation.
Student translates.
Student answers questions (4_1 or 4_2).

Category 9 is used to reflect student initiated questions or ideas. The subcategory 9_1 indicates a student initiated conversational question or comment. The rare occurrences of this category were generally in English. The subcategory 9_2 indicates a student initiated question about the target language. It also includes unexpected student responses which generally were of a negative nature, that is, asking for repetition or clarification.

Examples of category 9_1:

"Why does Barbara say that Jean-Pierre is 'galant'?"

Examples of category 9_2:

"Que veut dire le mot..."
"Je ne comprends pas."

Category 10 is used to indicate general silence or confusion. Inspired by Moskowitz, a certain convention was agreed upon in the coding of names. Names directly following a drill stimulus, a question, or a command were not coded separately. Names following an interval were coded separately in the same category as that which preceded, e.g., as a 3_2 question if preceded by a drill cue, as a 4_1 or 4_2 if preceded by a question, or as a 6_1 if preceded by a command. Names which preceded a stimulus, question, or command were coded separately in the same category as that which followed. Names in isolation were generally coded as 1_2, reflecting encouragement to a student volunteer.

Idiosyncratic habits of a particular teacher (such as the continual usage of such phrases as "Bon" or "Alors") were coded separately and in the same category as that which followed if noticeably distinct. Such occurrences were not coded separately if they blended in with that which followed.

A lecture sequence predominantly in English, with occasional phrases in French, was coded as in L_1 (English). Sentences half in English, half in French, were also coded all in L_1. That is, there was a tendency to penalize even slight shifts into English.

In addition to these categories reflecting teacher-student interaction, the OSl system was further marked for emphasis and mode. Emphasis in the material presented by each teacher could be identified as neutral, grammatical, semantic, phonological, or other, e.g., cultural. It was anticipated that such information would indicate those areas which were of particular concern to each teacher, perhaps even those within which each teacher felt most comfortable. The possibility of dividing the material taught into distinct units could also offer an opportunity to compare more closely specific activities as handled by different teachers. It could also afford easily accessible information concerning the percentage of time spent by each teacher on a particular type of activity.

The specification of mode was also deemed necessary in order to make possible a distinction between the use of the foreign language (L_2) and English (L_1). The possibility of distinguishing among speaking, reading, and writing in L_2 was also included as these modes would not be reflected in the use of the categories alone. The specification of reading behavior was considered important to qualify student responses which were not

freely spoken. Likewise the specification of writing behavior (by the teacher at the blackboard) was deemed necessary to qualify certain occurrences of the tenth category (silence or confusion). This distinction among speaking, reading, and writing, however, did not prove particularly fruitful as it was difficult to code from tape and did not, in fact, need to be used very often.

Provision had also been made to identify the teachers' use of audio-visual aids. As the use of such aids was almost entirely absent from the classes observed during this study, however, such a classification of behavior did not prove to be applicable and was eliminated.

OS1 Categories for Foreign Language Teaching Interaction Analysis

TEACHER	1. Comment	1_1	Accepts feelings, jokes, makes comments that release tension, uses students ideas. Tension releasing laughter.
		1_2	Praises extensively - Encourages.
	2. Response	2_1	Gives short words of praise.
		2_2	Reinforces student's response, using the same words, provides final model.
	3. Model	3_1	Gives model (first time or repeated), provides examples.
		3_2	Gives stimulus for drill.
	4. Probe	4_1	Asks a conversation question.
		4_2	Asks questions about the target language.
	5. Lecturing	5_1	Gives facts or opinions.
	6. Direction	6_1	Gives directions, orders, or indications about procedures.
	7. Correction	7_1	Shapes behavior - facilitates student's answer by providing clues.
		7_2	Rejects - Negative jokes.
STUDENT	8. Response	8_1	Individual repetition.
		8_2	Choral repetition or answer.
		8_3	Answer.
	9. Initiation	9_1	Asks a conversation question. Initiates a sequence.
		9_2	Asks a conversation question about the target language.
	10.	0_1	Silence or confusion.

Each of the above categories is further marked for emphasis and mode.

Emphasis	Mode
1 No particular emphasis	L_2 Speaking
2 On grammar	L_2 Writing
3 On meaning	L_2 Reading
4 On phonology	L_1
5 On other aspects	

Description of the Second Observational System (OS2)

Foreign language instruction, especially in its beginning stages, differs radically in at least one important respect from all other types of instruction when the teaching is conducted in the foreign language: the medium of communication in the classroom is also the object of instruction. The intellectual content conveyed through language is kept to a minimum: rather the main efforts of the students are geared towards the recognition and production of the forms and structures of the foreign language. Formal attributes of language can be described by a category system. It was assumed that, at the level of the sentence, a few of these attributes, well formed versus faulty, complete versus incomplete, type of syntactic structure, would be important factors in determining the quality of instruction and consequently its product, student learning.

Thus the second system used (OS2) was designed to reflect the use of language in the classroom and the teacher's command of the foreign language. The unit of scoring was the sentence, and because sentence structure is usually very simple in the beginning classes, it was anticipated that decisions regarding this unit would not be impossible to reach.

The sentence itself was defined operationally rather than linguistically. Incomplete sentences were those which the speaker intended to finish but either did not or could not. However, an utterance was classified as a cue if it were intended to be fragmentary, as in a drill situation. Complete sentences included both those which were grammatically complete and those which were functionally complete, that is, which had a sentence intonation. Teachers' sentences could also be categorized as non-well-formed, categories 2_1 to 2_5, in which case the complete-incomplete distinction was ignored.

OS2 Categories for the Analysis of Teachers' Command of the Language

COMMAND OF LANGUAGE

				Statement or answer	Yes/no question	QU question	Order	Other
				1	2	3	4	5
1_1	L_2	Sentence by Teacher, correct	complete					
1_2	L_2	Sentence by Teacher, correct	repeated					
1_3	L_2	Sentence by Teacher, correct	incomplete					
1_{40}	L_2	Cues, short praise, word, or word group shaping by Teacher						
2_1	L_2	Sentence by Teacher, faulty	two or more error types					
2_2	L_2	Sentence by Teacher, faulty	grammar					
2_3	L_2	Sentence by Teacher, faulty	lexis					
2_4	L_2	Sentence by Teacher, faulty	phonology					
2_5	L_2	Sentence by Teacher, faulty	repeated					
3_{10}	L_2	Sentence by Teacher AND Students						
4_{10}	L_2	Sentence by Student(s)	complete					
4_{20}	L_2	Sentence by Student(s)	incomplete					
5_{10}	L_1	Sentence by Teacher						
5_{20}	L_1	Sentence by Student(s)						

French phrases embedded within an English sentence were not coded separately unless they could be interpreted as distinct citations due to syntax or intonation. In practice, the coder was rather lenient with faults of intonation and minor distortions in articulation. As the distinction between correct and faulty would have been difficult to make in the case of student sentences, few sentences being acceptable as phonological correct, only the less subtle but more easily identifiable contrast between complete and incomplete was retained.

Eight of 14 categories were secondarily marked for syntax (types of sentence structures). These were all the categories describing the teachers' use of the foreign language (except category 1_{40} which was used to signal drill or shaping cues, usually in the form of a word or a word group, and isolated words of praise which were not seen as representative of the teachers' use of French).

Experimental Conditions and Description of the Sample

The present study was conducted in a university setting for a number of reasons. It was, first of all, the easiest and least costly alternative available. More important, however, instruction in the first-year language classes in the Romance Languages Department at the University of Michigan is highly regulated, permitting control of a number of variables not so easily possible elsewhere: a) all teachers involved are graduate students with comparable backgrounds and qualifications; b) the teachers involved have had the same prior training, i.e., a three-day workshop at the beginning of their teaching assignment; c) the teachers use the same materials and teach parallel classes according to the same fixed schedule, and the maintenance of an adequate teaching record reflecting the recommended methodology is the condition of their continued appointment; d) departmental examinations and standardized grading procedures are used to assess student performance; e) the students in each class are drawn from a homogeneous university population.

In the sample used, age and sex of students were tested by Chi-square and proved to be statistically insignificant. Apart from the initial course taken in the department, previous exposure to French was nonexistent. It was impossible, however, to standardize class size (between 10 and 20 students). It was discovered later that the relevant information necessary to carry out an analysis of covariance using the mid-term exam as the dependent variable and verbal SAT and the standardized departmental final examination at the end of the first semester course in French as covariables could not be obtained for all students. The original sample of 151 students enrolled dropped to 109, with a range of 7 to 16 per teacher.

Class sessions were distributed throughout the day. Likewise it was also not feasible to control for differences in motivation among the individual students, nor for differences in the amount and the quality of the homework demanded of the students. However, given the number and importance of controlled variables, it was hoped that differences in student results would be attributable largely to variations in teacher behavior.

Original estimates of a study based on 20 teachers had to be modified due to a lower student enrollment than anticipated. Observation of 11 teachers was actually begun, with the eventual loss of one teacher for personal reasons. The 10 remaining teachers included 5 males and 5 females. Their teaching experience ranged from one to three years.

Observation of Classes and Coding Process

Early in the semester a meeting was held with the department chairman and the teachers to explain the general purpose of the research. It was emphasized that the study would not result in a departmental evaluation of individual teachers. They were not informed, however, of the exact nature of the category systems to be used in describing their classroom behavior.

Soon after this preliminary meeting, the observers made at least one visit to each class to familiarize students and teachers with the taping and observational procedures to be used. The actual taping for coding purposes took place a few weeks later, after teachers and students had had an opportunity to become accustomed to each other, yet early enough in the term that they would not feel under undue pressure from approaching exams. The taping of four class sessions per teacher was carried out with in one week's time (the 2nd week of February) in order to capture a complete teaching cycle for each teacher. These four classes constituted a complete unit of instruction, the same for all ten teachers, during which they performed the whole range of activities required from them at this stage. Since all the teachers were using the same textbook, L'Echelle (Carduner, Hagiwara, Politzer, & Blaisdell, 1966) the content of those lessons was the same for all. The observers were present in each class and made some observations as to the classroom routine, timing, and teacher personality, according to previously prepared observation sheets.

Originally a portable data recording device, the Multiplexor, was to be developed and tested to permit live observation under normal classroom conditions. Two observers, using two different category systems, could have used the same machine which would have punched both tallies and time intervals onto paper tape readable by a computer. This machine would have eliminated the costly and time consuming processes involved in the separate operations of observing, coding and storing, normally required in observational research of this type (see description of Multiplexor in Appendix 1).

As a result of delays in approval for purchase at the Office of Education, the Multiplexor was not available for in-class observation. This obliged the observers to code from audio tape recordings. For this purpose, a coding box with ten buttons was built, and the CONCODE program for CATTS was adapted for each system to relay the coded data to a PDP-4 computer. This yielded two kinds of output: a punched paper tape and a print-out of the actual tallies. The data from the paper tape were later transferred to punched cards for analysis using an IBM 360-67 computer.

Findings on Reliability

Coding process. The data, originally tape-recorded, were coded within days of the actual observations. The coders had observed the classes and filled out a questionnaire including a breakdown of activities and comments on the teachers' performance, command of French, personality and on the organization and atmosphere of the class. These reports proved very helpful in the interpretation of some class sequences.

All 40 class hours of tape were coded twice: once using OS1, and the second time OS2. Two coders were trained in the use of each system. Coders 1 and 3 were the principal coders for OS1 and OS2 respectively, with Coders 2 and 4 serving to check the reliability of the principal coders. The same coder functioned to check reliability for OS1, and as the principal coder for OS2.

All the coders had been thoroughly trained prior to the beginning of the experiment as they had conceived and perfected the coding systems over a period of three months. Numerous consultations between the coders took place during the actual coding process. The coding of OS2 was done by native speakers of French. All coders were well trained in linguistics.

Although the two systems use low-inference categories (categories requiring minimal judgment on the part of the coder), some problems of interpretation did arise (see earlier comments). But the main source of difficulty was the speed required for coding 4 digit tallies in OS1. On the whole, the coders succeeded in coding in real time (at the pace of the class) but the timing was not deemed accurate enough to be used as a variable and further analyzed. However, it was a valuable indicator when sequences of tallies were compared to decide if two particular tallies coded at the same point in time were the same (although the preceding tally was missing in one of the sequences) or different. Comparisons were made by examining a computer print-out of the timed sequence of tallies, and when in doubt, playing back the original tape.

Sampling of Data for Checking Reliability (Agreement)

At the end of the principal coding task, portions of tapes for each teacher were selected at random. For OS1 200-tally chunks were chosen

for recoding by the principal coder (intra-observer stability) and by a second coder (inter-observer agreement). For OS2, 200-tally chunks were chosen for recoding by the principal coder, and 5 whole tapes were randomly chosen for recoding by Coder 4.

Definition of Reliability

Reliability was defined as the percent agreement between the number of tallies coded identically and the total number of tallies in the reliability sample.

Misclassifications (i.e., differences between tallies for the same event) and omissions (i.e., missing tallies in one count) were counted as disagreements, with proper sequencing carefully observed except for inter-observer agreement in OS2, where the results are reported in Table 1. As can be seen, very high levels of agreement,

---

Insert Table 1 about here

---

with little variability, were obtained in all Systems X Observers classifications. This is an important prerequisite to be satisfied for the analysis of the data collected in this research, since it implies that the classroom behavior was successfully rendered discrete, with highly systematic assignment of categories to behavioral events.

Findings on the Frequency Analysis of the Systems

For both frequency and Markovian analysis, the data were analyzed by a contingency table program written by Daniel J. Fox of the Statistical Research Laboratory of the University of Michigan, based on a minimum discrimination information statistic (Kullback, Kupperman & Ku, 1962). This program computes an analysis of information table containing likelihood ratio statistics, degrees of freedom and attained significance levels

a. that all pairs of variables are independent,
b. that all three variables are independent,
c. that two of the variables are independent of a third,
d. that two of the variables are independent given a level of the third.

In these tables, the probability that the variables considered are independent is abbreviated by P-, the probability level p varies from 0 (certainly that they are related) to 1 (complete independence); df indicates the number of degrees of freedom for the test, which is equal to (C-1)(r-1), where c is the number of levels of the columns variable and r is the number of levels of the rows variable. Information indicates the value of the test statistic $-2 \ln \lambda$, which is asymtotically equivalent to χ^2; component indicates the two variables for which the test is made.

In the following two subsections, the findings for the frequency and Markovian analysis of OS1, and the frequency analysis of OS2, are reported to show how the data were distributed for each variable in the systems, and which variables were found independent.

1) OS1

A) There are 10 two-way tests of independence that can be computed on the frequency matrices for the five variables of OS1. Of these, four are of no concern here, since they include classhour visited as one of the two variables in the test. The remaining six tests are reported in Table 2, and, for each, the full frequency matrix is reported in Tables 3 to 8. Five of the six tests gave values significant beyond $p = .001$.

Insert Tables 2 - 8 about here

B) To determine which levels of Category interacted with Teachers, Category, with 18 levels, was successively recoded 18 times, to compare each level with the sum of all others. For each recombination, the statistic for Teacher x Category was then retested. The results are shown in Table 9. Seven of the 18 macrocategories were significantly discriminated among teachers in the sample at $p < .05$, with $p < .001$ in all cases but one.

Insert Table 9 about here

For the 10 macrocategories in OS1, the statistic for independence with Teachers was Information = 268.88, df = 81, $p < .001$. To determine which levels of Category in this sense interacted with Teachers, Category, now with 10 levels, was successively recoded 10 times, to compare each level with the sum of all the others. The statistics for independence for each recombination of Teacher x Category are shown in Table 10. Six of the 10 macrocategories were significantly discriminated among teachers in the sample with $p \leq .003$.

Insert Table 10 about here

C) When Mode was recoded as French (1, 2, 3) vs. English (4), the test statistic rejecting independent with Teachers was Info = 11.58, df = 9, $p \leq .001$.

D) All levels of emphasis were found to interact significantly with Teachers, with $p < .001$ for each.

E) Microcategories 2_2, 3, 6, 7, 8, and 10, and macrocategories 3, 6, 7, 8, and 10 were found to interact significantly with Mode, with $p \leq .02$ for each.

F) No micro- or macrocategories interacted with Emphasis.

G) With Mode recoded as French (1, 2, 3) vs. English (4), it was found to interact only with Emphasis 5 (other aspects).

H) Finally, the OS1 frequency data for categories were analyzed by the three-way contingency table program as one-step Markov chains with Teachers as a third dimension. The grand matrix for all teachers together on the Category variable is shown in Table 11. The individual matrices are included in Appendix 2

Insert Table 11 about here

Table 11 Category x Category in OS1

A three-way statistic of Teacher independence of both "preceding and succeeding" categories was calculated; however, there is reason to believe that these data were not successfully analyzed by the program, and will have to be reanalyzed.

A) There are three meaningful two-way tests of independent which exclude class hour visited which can be computed on the OS2 variables. These are Teachers x Categories (14 levels), Teachers x Syntax (5 levels), and Syntax x Categories (8 levels). The results of these tests are shown in Table 12.

Insert Table 12 about here

The full frequency matrices for Teacher x Category, Teacher x Syntax, and Syntax x Category are reported in Tables 13, 14, and 15.

Insert Tables 13 - 15 about here

B) To determine which (if any) levels of Categories interacted at all with Teachers and Syntax, Categories were recoded into 14 two-level variables, using the same procedure followed in analyzing OS1. The results are shown in Table 16.

Insert Table 16 about here

C) Categories were also recoded to make specific Category x Teacher tests of independence: Teacher frequency (1_1 to $2_5 + 3_{10} + 5_{10}$) vs. the other frequencies (3_{10} to $4_{20} + 5_{20}$), L_2 by Teacher (1_1 to 2_5) vs. L_1 by Teacher (5_{10}), L_2 by Students (3_{10}, 4_{10}, 4_{20}) vs. L_1 by Students (5_{20}), and Correct Sentences by Teacher (1_1, 1_2, 1_3) vs. Incorrect Sentences (2_1 to 2_5) by Teacher. The results are reported in Table 17.

Insert Table 17 about here

D) To determine which levels of Syntax interacted significantly with Teachers, the variable Syntax was recoded into five two-level variables comparing each level with all other levels. The results are shown in Table 18. All levels were significant beyond $p = .001$.

Insert Table 18 about here

Testing of Hypotheses

A) Criterion measures of teacher effectiveness

Classroom achievement scores. Students' performance on the Verbal Scholastic Aptitude Test (VSAT) of the College Entrance Examination Board (CEEB) tests, and on a standardized achievement test for first semester college French used in the Department of Romance Languages, were used as covariates in the evaluation of students' performance on the second semester mid-term exam. This test was administered one week after the end of classroom observations and yielded scores on two dependent variables: one for the total exam (MID), and one for only the first part based on oral comprehension (MID1), which was expected to be a closer reflection of effects of the type of teaching previously observed (see Appendix 3). The number of students in this analysis (for whom all of the relevant data were available) was 109, ranging from 7 to 16 across the 10 teachers. In the analysis of covariance, raw scores were transformed to logarithms to correct for positive skew, and the equality of slope assumption of the test: for MID, $f(9,97) = 1.91$, $.05 < p < .10$, and for MID1, $f(9,97) = 3.28$, $p < .01$. The geometric means based on adjusted group scores are shown in Table 19.

Insert Table 19 about here

Only one teacher (S.S.) was shown by post hoc t-tests to be significantly different from most other teachers, and this presumably accounted for the achieved levels of significant. The original purpose of the analysis, to determine statistically groups of high-achieving and low-

achieving teachers, was thus frustrated. Instead of testing hypotheses about teacher effectiveness by dividing the sample into two groups and using $\underline{t}$ or λ^2, Spearman $\underline{r_s}$ correlations based on the ranks of adjusted group means and those of ratios of category use were employed in the predictive analyses.

Student ratings. At the end of the term a questionnaire was given to all the students at the same time. This is a standardized procedure in the department. The first 17 questions on a 7-point scale ranging from below to above average, provide the basis for an evaluation of each instructor (see Appendix 3). The number of students answer all 17 questions was 123 with a range of 7-15 per teacher. Mean ratings for all 17 questions are presented in Table 20, along with the grand means.

Insert Table 20 about here

Observer ratings. Although to this date reported results provide only moderate support for the value of observer ratings as a measure of teacher effectiveness, the two principal observers who had filled out questionnaires (see Appendix 4) at the end of each class produced two independent lists of the ten teachers, ranking them in descending order on two aspects, command of French and quality of teaching techniques.

Summary. The five evaluation variables, mid-term test (WMID), first part of mid-term test (MID1) student ratings, and two observers' ratings are reported in Table 21. A correlation of each pair of evaluation

---
Insert Table 21 about here
---

variables in terms of the squared difference term in Rho (df = 9) is reported in Table 22.

Insert Table 22 about here

It can be seen that MID - MID I scores, the MID - students' ratings, and students - teachers' command of French were all positively correlated beyond the .025 confidence levels by 1-tailed Spearman Rho tests: MID - command of French and the two observer ratings were positively correlated beyond the .05 level.

B) Hypotheses

The following hypotheses were formulated according to current assumptions about what constitutes effective teaching in a beginning language

class. It is assumed that their implications do not extend beyond the limits of the initial phase of language teaching.

The ratios presented below using frequency data from OS1, OS2, and OS1 1-step tables, expressed in terms of the frequency of whole categories for OS1, and OS2 and of cell frequencies for OS1 1-step, are not empirical hypotheses themselves, but measures of behavior, the hypotheses are that these measures will be related to measures of effectiveness, i.e., the evaluation criteria. Thus, H_1 is a prediction about correlation between test scores and teacher's participation/students' participation.

The five evaluation measures provide five different rank ordered lists of the ten teachers in the sample. The ratios computed from the observed frequencies for each teacher will be rank-ordered each time and compared with the criterion measures. So that stating in a hypothesis that the teacher getting the highest ratio, i.e., getting first rank in the ordered list will be most effective also implies that the teacher getting the second rank will be the next most effective, etc.

a) Hypotheses tested with ratios based on OS1 frequency data.

H1: A language teacher who speaks least and has his students speak most will be most effective.

In terms of OS1 categories, this H_1 was to be tested using the following ratio:

$$\frac{\text{cat. 1 to 7}}{\text{cat. 8 + 9}} = \frac{\text{T.'s total participation}}{\underline{\text{Ss}}\text{' total participation}}$$

and ignoring cat. 10, silence or confusion.

H2: A language teacher who scores higher on categories construed as denoting "indirect influence" than on categories relating to "direct influence" will be most effective.

H_2 focuses on the attention given by the teacher to students' behavior and ideas, and his praise and reinforcement as contrasted with the teacher's directing and criticizing,

$$\frac{1_1 + 1_2 + 2_1 + 2_2}{6_1 + 7_1 + 7_2}$$

This hypothesis roughly corresponds, in terms of absolute frequencies of use, to what are known in the literature as "indirect" vs. "direct" influence" or "integrative" vs. "dominative" types of teachers (Flanders, 1966).

H3: A language teacher who elicits students' participation and practice by using more drills and questions than lecturing will be most effective.

In terms of OS1 categories: $H3_1$ was to be tested with the ratio:

$$\frac{3_1 + 3_2 + 4_1 + 4_2}{5_1}$$

This ratio was further refined for $H3_2$ as:

$$\frac{3_1 + 3_2 + 4_1 + 4_2 + 7_1}{5_1 + 7_2}$$

to include 1) teacher shaping techniques of correction as a way to elicit student practice of the foreign language (7_1) and 2) rejecting criticism (7_2) as inhibiting students' participation.[1] Although reflecting teacher type and degree of influence $H3_1$ and $H3_2$ are more concerned with basic classroom techniques.

H4: A language teacher who uses shaping techniques for correction will be more effective than the teacher who rejects students' incorrect responses. In terms of OS1 categories, $\frac{7_1}{7_2}$, the greater the ratio the the more effective the teacher. This ratio can be considered as a simpler but less precise measure of the teacher's approach already measured in H_3: solicitation vs. imposition.

H5: A language teacher who encourages students' spontaneous participation in the foreign language (L_2) in preference to interventions in the native language (L_1) will be more effective. In terms of OS1 categories:

$$\frac{9_1 + 9_2 \text{ in } L_1 + L_2}{9_1 + 9_2 \text{ in } L_1 \text{ alone}}$$

This can be interpreted as a measure of the degree of willingness and spontaneity with which the students initiate sequences in the foreign language.

H6: A language teacher who encourages his students to use the foreign language more spontaneously will be more effective. In terms of OS1 categories:

$$\frac{8_1 + 8_2 + 8_3}{9_1 + 9_2} = \frac{\text{spontaneous contributions in } L_2}{\text{conditioned responses in } L_2}$$

That is, the greater the ratio, the more spontaneous the students are in their use of the foreign language.

H7: A language teacher more restrictive of the use of the student's native language in the class-room will be more effective. In terms of OS1 categories:

$$\frac{\text{Modes 1, 2, and 3}}{\text{Mode 4}} \quad (\text{use of } L_2)$$

H8: A language teacher more restrictive of the use of the native language by his students will be more effective. In terms of OS1 categories:

$$\frac{8_1 + 8_2 + 8_3 + 9_1 + 9_2 \quad (L_2)}{8_1 + 8_2 + 8_3 + 9_1 + 9_2 \quad (L_1)}$$

H9: A language teacher who obtains the more student participation in the foreign language--excluding mere repetition--will be more effective. In terms of OS1 categories:

$$\frac{\text{total tallies}}{8_3 + 9_1 + 9_2 \; (L_2)}$$

H1 assumes that the way talking time is distributed between T and Ss in the classroom will affect efficiency.

H2,3, and 4 assume that the use of indirect influence coupled with eliciting techniques will produce better learning than direct influence and lecturing.

H5 and 6 assume that a classroom climate and teaching techniques producing more spontaneous use of the foreign language by the Ss will produce better learning.

H7,8, and 9 assume that maximal use of the foreign language in the class-room will produce better learning.

b) Hypotheses tested with ratios based on OS2 frequency data.

The first three hypotheses assume that the proportion of sentences in the foreign language which are used by T and Ss will be correlated with learning.

H1 duplicates H7 in OS1.

A language teacher more restrictive of the use of sentences in the students' native language in the classroom will be more effective. In terms of OS2 categories:

$$\frac{\text{cat 1 to 4} \quad (L_2)}{\text{cat 5} \qquad (L_1)}$$

$H1_2$: A language teacher who uses the foreign language more will be more effective. In terms of OS2 categories:

$$\frac{\text{cat 1 to 3 } (L_2\ T)}{\text{cat } 5_{10} \quad (L_1\ T)}$$

$H1_3$ replicates H_8 in OS1.

A language teacher more restrictive of the use of sentences in the native language by his students will be more effective. In terms of OS2 categories:

$$\frac{\text{cat 3 + 4 } (L_2, \underline{Ss})}{\text{cat } 5_{20} \quad (L_1, \underline{Ss})}$$

$H2_1$ and $H2_2$ relate to the proportion of teacher and student talk in the foreign language and in both foreign and native language.

$H2_1$: A language teacher who speaks least in the foreign language and has his students speak most will be more effective. In terms of OS2 categories: $\frac{1 \text{ to } 3}{3 + 4}$ (L_2)

$H2_2$ replicates H_1 in OS1.

A language teacher who speaks least and has his students speak most will be more effective. In terms of OS2 categories:

$$\frac{1 \quad 3 + 5_{10}}{3 + 4 + 5_{20}} \quad (L_1 + L_2)$$

H3 and 4 assume that the greater the degree of "correctness" of the foreign language used in the classroom, the better will be learning.

Correctness is computed in terms of correct vs. faulty sentences for the teacher (excluding cat. 1_{40} which is mostly drill or shaping cues), and in terms of complete vs. incomplete sentences for the students.

H3: A language teacher who uses the foreign language more correctly will be more effective.

H4: A language teacher who makes his students produce a greater proportion of complete sentences vs. incomplete sentences in the foreign language will be more effective. In terms of OS2 categories, the ratios are respectively:

$$\frac{\text{cat } 1}{\text{cat } 2} \quad \text{and} \quad \frac{\text{cat } 4_{10}}{\text{cat } 4_{20}}$$

H5 and 6 assume that the use of questions is an effective technique to develop Ss' production and ability to use the foreign language as a real means of communication.

H5: A language teacher who uses the greater proportion of questions will be more effective.

H6: A language teacher who uses the greater proportion of QU questions will be more effective. In terms of OS2 categories:

$$\frac{\text{Syntax (2nd subscript) } 2 + 3}{\text{Syntax 1 to 5}}$$

$$\frac{\text{Syntax 3}}{\text{Syntax 2}}$$

c) Hypotheses based on OS1 1-step frequency data.

H1: Using Soar's definition of flexibility (how many cells are needed to account for 60 of the tallies) this hypothesis predicts that a more flexible language teacher will be more effective.

H2: Using the Cartesian product of i (1_1, 1_2, 2_1, 2_2) by itself as a measure of extended indirect influence (i) and the Cartesian product of d (6_1, 7_1,7_2) by itself as a measure of extended direct influence (d), H2 predicts that the language teacher using proportionally more indirect influence will be more effective. In terms of cell frequencies:

$$\frac{i}{d}\ \frac{1_1,\ 1_2,\ 2_1,\ 2_2}{6_1, 7_1, 7_2} \quad \text{in same columns.}$$

H3: A language teacher who shows greater concern for students' participation will be more effective. The ratio is obtained by examining rows 8_1 to 9_2, i.e., the way teacher reacts to students' participation. Indirect influence and maintaining the exchange, categories 1 to 4 are contrasted with direct influence and lecturing, categories 5 to 7. In terms of cell frequencies:

$$\text{Rows } 8_1 \text{ to } 9_2 \qquad \frac{\text{cat 1 to 4}}{\text{cat 5 to 7}}$$

H4: The language teacher who uses drill stimuli and questions will be more effective.

d) Results.

The correlations with the five evaluation variables are reported in Table 23. The three tables of ratios by teachers are given in Appendix 6. Twenty-two correlations out of the 120 which were computed were significant, 19 beyond the .05 level of confidence, 2 beyond the .025 level and 1 beyond the .005 level. There were 17 positive and 5 negative correlations.

Insert Table 23 about here

None of the ratios correlated with the second evaluation variable, the first part of the mid-term exam. There were four positive and one negative correlation with variable 1, adjusted mid-term scores, five positive and two negative correlations with variable 4, observers' ratings of teachers' command of French and two positive correlations with variable 5, observers' ratings of teachers' techniques.

1) Of the 50 correlations using ratios based on OS1 raw frequencies only two were significant, both involving variable 3, students' ratings. It appears that students are sensitive to the type of criticism used by the teacher (shaping vs. rejection). The correlation with the ratio $\frac{7_1}{7_2}$ was significant beyond the .025 level of confidence. Also, students' ratings must have been influenced by the proportion of foreign vs. native language used in the classroom as the ratio for H7 correlated positively with variable 3.

2) Of the 45 correlations using ratios based on OS2 frequencies nine were significant.

$H1_1$ predicted that effectiveness would be correlated with the ratio of the total number of sentences in the foreign language to the total number of sentences in the native language. The ratio was negatively correlated with variable 4. In fact, the teachers whose French was most correct were not those who used French most in class and this may account for this finding. The observers did not take into account the sheer amount of French used in the classroom but the teachers' command of French.

$H1_3$ predicted that effectiveness would be correlated with the ratio of foreign to native language sentences used by the students. The ratio was negatively correlated with variables 1 and 4. The sheer amount of sentences used is not the important factor here, but the quality of the French used.

In those three hypotheses predictions should not be based on the numbers of sentences used in the L_2 and L_1 but on the quality of the language used, given a sufficient number of sentences.

$H2_1$ predicted that effectiveness would be correlated with the ratio of the number of L_2 sentences spoken by the teacher to the number of L_2 sentences spoken by the students. This was parallel to H7 in OS1. There was a positive correlation with variable 5, observers' ratings of teachers' techniques.

The best predictor was H3. The degree of correctness of the teacher in the foreign language was positively correlated with 4 of the five evaluation variables, with variable 1 beyond the .025 level of confidence and with variable 3 beyond the .005 level. This talent of the teacher seems to be well perceived by the students and may increase their confidence in him.

H4 predicted that students producing the greater proportion of complete, vs. incomplete, sentences would learn more and consequently that the most effective teacher would make their students produce complete sentences whenever possible. The ratios correlated negatively with variables 1 and 3.

Again quality of the language used and classroom situation should be considered here. It was observed that, in some classes, students practiced build-up reading thus producing a number of incomplete sentences in a situation where this practice could not be construed as detrimental. This hypothesis must be abandoned as it is not possible at this point, using this system, to differentiate between types of use and teaching situations.

The greater the ratio of QU questions over "Oui - si - non" questions, the more the observers seem to be influenced in their evaluation of the teachers' command of French.

3) Of the 25 correlations using ratios based on the OS1 Markovian matrices eight were positive and one negative.

Flexibility defined after Soar (1966) as the number of cell frequencies accounting for 60% of the total number of tallies correlated with variables 1, 3 and 4. This seems to be an important dimension of teacher effectiveness.

The ratio of extended $\frac{i}{d}$ correlated with variables 1, 3 and 4 thus confirming the hypothesis that sustained indirect influence makes for greater effectiveness than sustained direct influence. But this global result will have to be further tested in specific classroom situations as it is suspected that indirect and direct influence can have various effects depending on the degree of clarity of the goals for the students (Flanders, 1966).

Another measure of $\frac{i}{d}$, computed from the reactions of the teachers following student talk yielded a negative correlation with variable 3. This hypothesis will be reformulated to eliminate 7_1, shaping, which may not be felt as direct influence by the students but as a necessary help.

H4 and 5 were sustained by one positive correlation each with variable 4. This seems insufficient as the prediction was based on the expectation that certain techniques were more effective, thus bearing little relation to the teachers' command of French.

Conclusions

1) Description power of the systems.

A. The major purpose of this research was to determine the descriptive power of two specially developed observational systems. It may be illustrative to present the profiles of the average teacher and students as performers in the language classroom. The following sketch, based exclusively on statistical data to the exclusion of the comments recorded by the observers, does not exhaust all the possibilities of interpretation as it describes only the average teacher and students. The description applies only to the . classes observed and should not be construed as a prescriptive model of what a beginning language class should be at the college level.

1. Distribution of activities as observed through verbal behavior.

The teacher is the most active as he performs 2/3 of the units of behavior (66.5%) whereas the students perform 24.5%. Silence is limited to a minimum (9%) and occurs mostly when students hesitate before answering. Sixteen percent of all verbal behavior is in the students' native language and 84% in the foreign language, oral practice accounting for 74% and reading for 9%, the remaining 1% being taken up by writing, usually by the teacher on the blackboard.

More than half of the total time is devoted to grammar (52%) drills or explanations and the 36% described as "general use" are heavily fraught with grammatical intentions on the teacher's part. Ten percent of the total time is devoted to explanations of meaning and half the time these explanations are conducted in English. Phonetics is restricted to 1% of total activities and about a fourth of this time (.225%) is taken up by explanations in English. The teaching of culture was not a primary aim of this language course: explicit focus on culture occurs less than 1% of the total class time.

The typical class was 48 min. long.

2. Teacher profile.

Teacher use of language. On the whole the teacher uses French with a high degree of correctness (91%). Nine percent of all teachers' sentences are faulty, 27.5% of the errors being grammatical and 61.5% phonetic. Only rarely (2%) does the teacher produce a sentence containing two or more mistakes.

Statements account for 47% of all the sentences uttered by the teacher (excluding drill cues), questions for 23.5%, orders for 19%. Approximately one sentence out of seven is intentionally repeated, and one out of six utterances is a cue. The teacher uses proportionally more English than his students: 21.5% of all teacher utterances against 15.5% of all student utterances are in English.

Teacher techniques. The teacher appears primarily as a lecturer since nearly one-third of his total verbal behavior is in category 5 (lecturing and explaining), and 38% of his lecturing is done in English.

On the other hand he is little prone to using sharp criticism (1%), nor does he readily accept student's feelings, use their ideas, or release tension (1%).

Nearly one-third of his time is occupied in modeling and probing (31.5%). These activities include producing models for imitation (9.5%), giving drill cues (6.5%), asking conversational questions (10%), asking questions about the language taught (5.5%). One fourth of the questions asked about the language are asked in English.

The teacher gives most of his directions in French and this takes up 12% of his moves.

He confirms students' answers by repeating them (10% of his moves). Most of the time confirmation is accompanied by short words of praise (6.5% of total teacher moves) and extended praise (3%).

If rejecting criticism is rare, shaping (5% of total teacher moves) is used mostly for grammar and for phonetics.

3. Student profile.

The student is primarily a respondent. Nearly half of his moves (46%) are individual responses. More than one-fourth (27%) are choral repetition or more rarely, choral responses to drill stimuli, 17% are devoted to individual repetition.

He seldom initiates a sequence (categories 9_1 and 9_2 account for 2% of total classroom units of behavior) and when he does, he does so in English two-thirds of the time.

Fifteen and a half percent of his utterances are in English and he produces two complete sentences for each incomplete one.

B. The goals of the present research as outlined in the introduction have been largely attained. Both major observational systems developed were applied with very high observer agreement to a substantial amount of classroom behavior. The systems' independent variables of categories (and their hierarchical organization), language used (French or English) and its sentence structure (French), teaching emphasis and teachers were found to interact in significant ways over this discretely resolved behavior. In particular, for OS1, many of the categories were found to vary with even the relatively homogeneous sample of teachers participating in the experiment, and hypotheses for effectiveness based on Markovian analyses were generally confirmed. For OS2, many of the hypotheses described were also confirmed, even using the relatively weak

nonparametric test of correlation between derived category ratios and estimates of teacher effectiveness. Thus, the present research can be said to have succeeded at least in part in both aspects of the goals outlined: we have described and quantified foreign language classroom behavior, and succeeded in correlating it with both objective and more subjective measures of effectiveness. While there is much in the data that will be refined in still further analyses, at least this much can be said to already have been accomplished.

2) Implications for future research

The present research has been considered as only the initial step in a long-term project. The observational systems used, although carefully developed and fulfilling the major requirements for category systems intended for this use, will need to be modified in various ways to answer some of the questions which have arisen over the analysis of results. A second research effort which will need to be undertaken before the systems can with reasonable confidence provide criteria for effective teaching, and for teacher training, is a correlational study employing a wider range of instructors, in order to estimate what the range and distribution of varous behavior measures are like, how each measure is related to the most objective criterion for effectiveness attainable under these less controlled circumstances, and to retest the applicability and exclusive nature of the systems themselves. To do otherwise, and nevertheless make concrete applied proposals for training, would be to prejudge the issues involved favoring the better teaching techniques in the study, and extend without empirical verification interpretations based on its possibly biased sample of behavior. Further research on observational systems in foreign language teaching can profit greatly from this initial attempt to apply the current observational systems. But, like other experimental findings, the present findings can be extended beyond the scope of the study only in the most cautious and tentative way.

Footnotes

[1]The research reported herein was supported in part pursuant to Contract OEC-0-9-097740-3743(014) with the U. S. Department of Health, Education, and Welfare, Office of Education, under the provisions of P. L. 83-531, Cooperative Research, and the provisions of Title VI, P. L. 85-864, as amended.

[2]Dr. Robert Jarvella is now at the Institute for Advanced Study, Princeton, New Jersey.

Bibliography

Biddle, B. J. Methods and concepts in classroom research. Review of Educational Research, 1967, 37, 337-357.

Biddle, B. J., & Williams, J. E. (Eds.) Contemporary research on teacher effectiveness. New York: Holt, Rinehart & Winston, 1964.

Bellack, A. A., et al. The language of the classroom. New York: Teachers College Press, Columbia Univ., 1965.

Bellack, A. A., Hyman, R. T., Kliegard, K. M., & Smith, F. L. The language of the classroom, Part II. New York: Teachers College, Institute of Psychological Research, Cooperative Research Project No. 2023, Columbia University, 1965.

De Landsheere, C. La prédiction et l'évaluation de l'efficacité des professeurs. Revue Belge de Psychologie et de Pedagogie, 1963, 25, 93-111.

Flanders, N. A. Interaction analysis in the classroom: A manual for observers. Ann Arbor: University of Michigan, School of Education, 1966.

Flanders, N. A. Teacher influence in the classroom. In Amidon-Hough (Ed.), Interaction Analysis: Theory, research, and application. Reading, Mass.: Addison-Wesley Publishing Co., 1966. Pp. 103-116.

Flanders, N. A. Teacher influence, pupil attitudes, and achievement. U. S. Department of Health, Education, and Welfare, Office of Education, Cooperative Research Monograph No. 12. Ann Arbor: University of Michigan, School of Education, 1965.

Gage, N. L. (Ed.) Handbook of research on teaching. Chicago: Rand McNally & Co., 1963.

Gage, N. L. Teaching methods. Research Memorandum No. 33, 1968, Stanford Center for Research and Development in Teaching, School of Education, Stanford University.

Gage, N. L., & Unruh, W. R. Theoretical formulations for research on teaching. Review of Educational Research, 1967, 37, 358-370.

Gallagher, J. J. Productive thinking of gifted children. U. S. Department of Health, Education and Welfare, Office of Education, Cooperative Research Project No. 965, University of Illinois, Urbana, College of Education, Institute for Research on Exceptional Children, 1965.

Kullback, S., Kupperman, M., & Ku, H. H. Tests for contingency tables and Markov chains. Technometrics, 1962, 4.

Meux, O. Studies of learning in the school setting. Review of Educational Research, 1967, 37, 539-561.

Moskowitz, G. The Flint system: An observational tool for the foreign language class. Philadelphia: Temple University, mimeographed, 1966.

Rosenshine, B. Teaching behaviors and student achievement. Stockholm: International Association for the Evaluation of Educational Achievement, 1970.

Ryans, D. G. Teacher behavior theory and research: Implications for teacher education. Teacher Education, 1963, 14, 274-293.

Semmel, M. I. A computer-assisted teacher training system. In A. P van Teslaar (Ed.) Studies in language and language behavior, progress report no. VII. Ann Arbor: Center for Research on Language and Language Behavior, The University of Michigan, Contract No. OEC-3-6-061784-0508, 1968. Pp. 390-448.

Smith, B. O., & Meux, O. M. A study of the logic of teaching, USDE Cooperative Research Project No. 258, University of Illinois, Urbana, 1962.

Soar, R. S. Methodological problems in predicting teacher effectiveness. The Journal of Experimental Education, 1964, 32, 287-291.

Table 1

Observer Agreement in Coding Classroom Behavior

Kind of Agreement	Observation System	
	OS1	OS2
Inter-observer	$\bar{X}$ = 87	$\bar{X}$ = 92
	SD = 3.7	SD = 2.6
Intra-observer	$\bar{X}$ = 94	$\bar{X}$ = 88
	SD = 2.5	SD = 3.7

Table 2

Two-Way Statistics for OS1

Component	Information	df	p
Teacher x Category	2253.54	153	.001
Teacher x Mode	9470.94	30	.001
Teacher x Emphasis	7776.09	36	.001
Category x Mode	568.29	51	.001
Category x Emphasis	0.0	68	1.0
Mode x Emphasis	682162	12	.001

Table 3

Frequency Distribution of Teacher by Emphasis in OS1

Empha / Teach	1	2	3	4	5	Total
1	1533	1711	352	88	158	3842
2	1749	2566	211	99	13	4638
3	1180	2501	839	17	11	4548
4	2223	2039	98	19	23	4402
5	1593	2575	323	75	59	4625
6	1611	2011	263	32	200	4117
7	1878	1655	662	16	37	4248
8	1441	2523	716	37	0	4717
9	1322	2680	180	131	0	4313
10	1632	2747	674	46	0	5099
TOTAL	16162	23008	4318	560	501	44549

Table 4

Frequency Distribution of Emphasis by Mode in OS1

Mode / Empha	1	2	3	4	Total
1	11114	96	3931	1021	16162
2	18881	251	0	3876	23008
3	2127	64	2	2125	4318
4	384	11	40	125	560
5	485	2	0	14	501
Total	32991	424	3973	7161	44549

Table 5

Frequency Distribution of Teacher by Category in OS1

Te Cat.	1	2	3	4	5	6	7	8	9	10	Total
1	10	17	25	48	25	15	13	12	13	39	217
2	110	88	51	88	55	84	23	162	72	111	844
3	162	188	146	249	112	296	89	287	197	195	1921
4	177	358	413	278	340	163	234	358	248	469	3038
5	342	116	218	508	504	120	231	302	247	164	2752
6	95	154	267	166	277	163	163	187	256	181	1409
7	209	228	346	361	90	240	648	199	251	465	3037
8	130	138	183	35	69	159	221	257	75	303	1570
9	909	1163	1217	569	1181	902	784	845	764	697	9031
10	289	568	385	299	215	355	287	366	391	344	3499
11	75	134	118	177	125	116	68	169	293	202	1477
12	53	31	19	8	29	6	27	31	34	24	262
13	115	247	80	264	200	303	125	181	190	185	1900
14	310	205	179	564	618	231	191	271	171	221	2961
15	410	490	548	390	417	383	460	561	571	808	5038
16	66	35	39	78	36	65	36	54	54	107	571
17	26	34	30	7	58	80	16	175	54	85	515
18	354	443	284	313	274	436	622	310	432	549	4007
Total	3 2	4638	4548	4402	4625	4117	4248	4717	4313	5099	44549

Table 6

Frequency Distribution of Emphasis by Category in OS1

Empha Cat	1	2	3	4	5	Total
1	100	85	21	2	3	217
2	305	448	76	6	9	844
3	685	1031	182	22	1	1921
4	730	1947	322	34	5	3038
5	1464	1208	11	69	0	2752
6	21	1886	2	0	0	1909
7	2361	493	161	0	22	3037
8	61	800	698	11	0	1570
9	2339	4727	1407	144	414	9031
10	1366	1943	141	46	3	3499
11	612	729	80	56	0	1477
12	74	130	55	3	0	262
13	1473	370	3	54	0	1900
14	968	1918	2	73	0	2961
15	1504	2929	592	7	6	5038
16	314	198	50	2	7	571
17	9	407	74	22	3	515
18	1770	1759	441	9	28	4007
Total	16162	23008	4318	560	501	44549

Table 7

Frequency Distribution of Teacher by Mode in OS1

Mode / Teach	1	2	3	4	Total
1	2489	93	437	823	3842
2	3387	17	421	812	4638
3	2583	25	166	1774	4548
4	3464	34	841	63	4402
5	4110	17	175	323	4625
6	3195	39	537	346	4117
7	3724	104	378	42	4248
8	2434	14	565	1704	4717
9	3230	2	262	819	4313
10	4375	79	191	454	5099
Total	32991	424	3973	7161	44549

Table 8

Frequency Distribution of Mode by Category in OS1

Cat / Mode	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total
1	167	697	1562	2649	1608	1879	2883	1140	5428	2896	1014	185	550	2303	4317	286	89	3330	32291
2	0	2	4	15	18	6	1	3	151	8	6	0	0	3	13	0	0	194	424
3	4	15	143	72	1122	0	4	0	37	167	356	8	1349	680	1	1	0	44	3973
4	46	130	212	302	4	24	149	427	3415	428	101	69	1	5	707	284	426	431	7161
Total	217	834	1921	3038	2752	1409	3037	1570	9031	3499	1477	262	1900	2961	5038	571	515	4007	44549

Table 9

Two-Way Statistics for 18 Microcategory x Teachers Tests in OS1

Component	Information	df	p
Cats. 1_1, 3_2, 4_2, 9_2	0.0 each	9 each	1.0 each
cat. 1_2	4.68	9	.86
cat. 2_1	12.48	9	.19
cat. 2_2	18.84	9	.03
cat. 3_1	94.96	9	.001
cat. 4_1	40.01	9	.001
cat. 5_1	24.97	9	.001
cat. 6_1	10.18	9	.335
cat. 7_1	77.15	9	.001
cat. 7_2	5.11	9	.82
cat. 8_1	221.75	9	.001
cat. 8_2	178.76	9	.001
cat. 3_3	2.55	9	.98
cat. 9_1	11.72	9	.23
cat. 10_1	3.22	9	.96

Table 10

Two-Way Statistics for 10 Macrocategory x Teacher Tests in OS1

Component	Information	df	p
Cat 1	4.68	9	.86
Cat 2	25.80	9	.003
Cat 3	94.96	9	.001
Cat 4	40.01	9	.001
Cat 5	24.97	9	.001
Cat 6	10.18	9	.34
Cat 7	76.49	9	.001
Cat 8	43.13	9	.001
Cat 9	11.72	9	.23
Cat 10	3.22	9	.96

Table 11

Markovian One-Step Grand Frequency Matrix for OS1

Categories

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	30	4	7	7	7	5	27	1	50	25	1	0	1	0	8	13	3	28
2.	14	85	5	10	0	8	29	8	60	66	5	0	12	3	275	66	113	85
3.	20	29	35	584	89	183	138	75	259	275	24	3	42	2	46	3	3	111
4.	17	27	573	261	31	387	240	102	501	302	16	4	100	283	65	14	8	107
5.	3	9	3	0	663	37	28	53	86	249	5	0	98	1442	30	0	1	45
6.	2	7	0	7	3	409	5	20	32	73	15	0	5	338	705	26	2	260
7.	14	57	2	9	10	3	1293	19	183	27	13	2	1	3	579	76	7	739
8.	6	40	1	6	9	6	12	492	130	24	12	1	0	4	473	16	6	332
9.	35	191	59	138	294	111	419	317	6107	428	37	8	21	1	132	83	137	576
10.	13	31	5	87	359	165	97	66	211	1182	67	5	212	401	164	28	7	399
11.	0	9	16	22	6	12	25	21	84	65	70	0	400	50	605	21	7	64
12.	1	9	1	7	7	11	21	31	52	21	40	21	1	0	27	1	1	10
13.	3	11	183	144	88	10	7	7	17	55	369	8	966	0	5	7	1	19
14.	9	14	274	315	1117	304	10	56	168	182	41	7	5	412	2	0	1	43
15.	20	118	721	1391	8	87	89	76	116	77	671	187	0	1	1173	21	4	278
16.	13	30	6	12	3	43	87	8	197	45	25	0	2	0	12	59	0	29
17.	0	20	3	6	1	4	2	4	249	8	2	1	0	0	1	0	192	22
18.	17	153	27	32	57	124	507	214	591	452	64	15	34	20	736	137	22	860

Table 12

Tests of Independence for OS2 Variables

Component	Information	df	Signif.
Teacher X Category (14)	9.858	117	.001
Teacher X Syntax	441.33	36	.001
Syntax X Category (8)	76.882	28	.001

Table 13

OS2 Frequency Distribution of Teacher by Category

Teach Categ.	1	2	3	4	5	6	7	8	9	10	Total
1	1263	1316	1386	2024	1443	1525	1621	1228	1096	1842	14649
2	261	203	147	280	415	97	134	189	184	313	2223
3	3	25	33	15	25	22	25	1	12	26	187
4	233	883	478	327	508	242	333	483	587	534	4308
5	3	7	1	1	1	4	16	0	1	0	34
6	26	105	52	30	50	56	32	3	24	9	367
7	12	34	3	5	19	13	15	2	6	3	112
8	33	66	62	114	84	73	319	11	50	12	824
9	9	36	15	17	63	19	105	2	88	8	332
10	0	1	0	0	0	0	0	0	0	0	7
11	476	538	402	649	634	342	418	320	395	500	4676
12	77	110	185	215	368	195	185	254	395	353	2287
13	404	519	1179	35	185	105	27	913	423	250	4044
14	123	64	119	20	87	122	19	348	78	109	1089
Total	2925	3607	3942	3743	3886	2875	3249	3754	3259	3459	33139

Table 14

OS2 Frequency Distribution of Syntax by Teacher

Synt / Teach	1	2	3	4	5	Total
1	821	83	230	337	139	1610
2	932	131	171	390	168	1792
3	773	113	193	365	135	1579
4	1197	336	304	356	298	2491
5	1281	163	173	237	246	2100
6	772	218	213	255	351	1805
7	1003	145	523	424	122	2267
8	549	135	280	309	163	1436
9	548	85	148	392	208	1431
10	924	174	469	492	154	2213
Total	8800	1633	2754	3557	1984	18728

Table 15

Category X Teachers and Category X Syntax
Tests of Independence

	Category	Info	df	Signif.
Teachers	1_1	9.858	9	.36
	2_2	4.904	9	.84
	2_4	4.904	9	.84
	All others	0.0	9	1.00
Syntax	1_1	221.501	4	.001
	1_2	105.376		.001
	1_3	2.866		.58
	2_4	4.412		.35
	2_5	4.799		.31
	2_1, 2_2, 2_3	0.00		1.00

Table 17

Two-Way Tests of Independence of Parts of OS2

Component	Info.	df	p
1_1 to 2_5 + 3_{10} + 5_{10} X 3_{10} + 4_{10} + 4_{20} + 5_{20}	50.39	9	0.001
1_1 to 2_5 X 5_{10}	0.0	9	1.00
3_{10} + 4_{10} + 4_{20} X 5_{20}	0.0	9	1.00
1_1, 2 + 13 X $2_{1,\ 2,\ 3,\ 4}$ + 15	0.0	9	1.00
$1_{1,\ 2}$ + 13 X $2_{1,}$			

Table 18

Two-Way Tests of Independence for Syntax X Teachers in OS2

	Syntax	Info	df	p
Teachers	Level 1	124.111	9	0.001
	Level 2	34.303	9	0.001
	Level 3	176.415	9	0.001
	Level 4	111.328	9	0.001
	Level 5	65.800	9	0.001

Table 19

Geometric Mean Scores

Teacher	MID	MIDI
1 M. N.	41.45	16.13
2 C. T.	39.35	13.84
3 G. G.	39.57	14.99
4 S. S.	34.78	11.15
5 J. A.	40.51	16.13
6 P. B.	43.52	16.54
7 R. S.	40.39	16.48
8 A. D.	41.73	14.91
9 F. W.	42.82	17.19
10 D. W.	42.15	16.16

Table 20

Meant Ratings for 17 Questions of Student Questionnaire and Grand Mean

Teach No. of Ques	M. N.	C. T.	G. G.	S. S.	J. A.	P. B.	R. S.	A. D.	F. W.	D. W.
1	3.86	3.54	3.07	3.05	3.07	3.78	3.75	4.38	3.50	3.77
2	4.00	4.15	3.14	4.48	3.43	4.00	3.42	3.85	3.57	4.00
3	3.24	3.46	3.00	3.92	3.13	4.00	3.92	3.85	3.57	4.00
4	3.72	3.62	3.63	3.85	3.33	3.80	3.25	3.92	4.14	3.77
5	3.72	3.62	3.28	2.85	3.00	3.55	3.00	3.25	3.93	3.92
6	3.14	3.58	3.14	3.22	3.07	3.22	2.75	4.00	4.14	4.00
7	3.14	3.46	3.56	3.38	3.20	3.44	2.42	3.54	3.71	4.08
8	3.29	3.62	3.40	4.00	3.54	3.77	3.33	4.08	3.71	4.08
9	4.29	3.84	3.28	4.08	3.33	4.33	3.00	4.15	4.42	4.23
10	4.58	4.00	3.33	4.48	3.47	4.66	3.33	3.77	4.57	4.08
11	3.86	3.62	4.00	3.85	3.80	4.11	3.33	4.00	4.64	3.77
12	4.00	3.32	3.00	3.40	3.13	4.00	3.33	3.46	3.93	3.84
13	4.00	3.48	3.42	3.64	3.20	3.44	3.33	4.00	3.72	3.84
14	4.14	3.87	3.79	4.32	4.20	3.44	3.58	4.15	3.65	3.77
15	3.43	3.62	3.42	3.24	3.54	3.77	3.00	3.46	3.93	3.59
16	3.86	3.80	3.35	4.00	3.33	5.77	3.00	3.61	4.14	3.23
17	4.14	3.92	3.63	4.24	3.27	4.72	3.17	4.30	4.14	4.38
Σ	64.46	62.22	57.46	64.80	57.54	65.68	55.07	64.44	68.05	66.67
$\bar{X}$	3.79	3.66	3.38	3.81	3.38	3.85	3.24	3.91	4.00	3.92

Table 21

Evaluation Variables

Teachers	1	2	3	4	5
				Joint Observers' Ratings	
	WMID	MID1	Ss Ratings	Command of French	Teaching Techniques
1 M. N.	5	5.5	6	3	3
2 C. T.	9	9	7	8	5
3 G. G.	8	8	8.5	5	10
4 S. S.	10	10	5	6	6
5 J. A.	6	5.5	8.5	9	4
6 P. B.	1	2	4	7	9
7 R. S.	7	3	10	10	8
8 A. D.	4	8	3	2	2
9 F. W.	2	1	1	4	7
10 D. W.	3	4	2	1	1

Table 22

Spearman Rho Correlations for
Evaluation Criteria

Pairs	ΣD^2 (Squared Difference)	
1, 2	46.5	**
1, 3	57.5	**
1, 4	96	*
1, 5	140	
2, 3	122.5	
2, 4	167.5	
2, 5	204.5	
3, 4	43.5	**
3, 5	103.5	
4, 5	76	*

Significance for D^2		Direction
*.05	99.3	
**.025	59.4	Positive
***.005	39.6	
*.05	260.7	
**.025	270.6	Negative
***.005	290.4	

Table 23

Correlations between Ratios and Evaluation Variables

Hyp.	Ratios in Terms of Cat.	Correlations with Evaluation Variables 1	2	3	4	5	Observ. System
H1	$\frac{1 \text{ to } 7}{8 + 9}$	224	221	242.50	196	208	
H2	$\frac{1 + 2}{6 + 7}$	253	257.50	169.50	141	114	
$H3_1$	$\frac{3 + 4}{3}$	182	155	130.50	124	142	O
$H3_2$	$\frac{3 + 4 + 7}{5 + 7_2}$	180	163	119	110	142	S
H4	$\frac{7_1}{7_2}$	134	160	65.50**	134	210	
H5	$\frac{9_1 + 9_2 (L_1 + L_2)}{9_1 + 9_2 (L_1)}$	198	140.50	185.50	236	190	1
H6	$\frac{9}{8} L_2$	114	126.50	117.50	162	132	
H7	$\frac{M_{1, 2, \& 3}}{M_4} (= \frac{L_2}{L_1})$	150	187.50	83.50*	134	134	
H8	$\frac{8 + 9 (L_2)}{8 + 9 (L_1)}$	220	161	192.50	246	182	
H9	$\frac{8_3 + 9_1 + 9_2 (L_2)}{\text{Total N tallies}}$	186	113.50	141.50	166	183	

Table continued on next page

Table 23 - continued

Hyp.	Ratios in Terms of Cat.	Correlations with Evaluation Variables 1	2	3	4	5	Obser Syste
$H1_1$	$\frac{1 \text{ to } 4 \ (= L_2)}{5 \quad (= L_1)}$	188	128	207.50	268*	182	
$H1_2$	$\frac{1 \text{ to } 3 \ (L_1)}{5}$	170	118	190.50	251	.96	
$H1_3$	$\frac{3 + 4 \ (L_2)}{5 \quad (L_1)}$	268*	181.50	231.50	264*	190	0
$H2_1$	$\frac{1 \text{ to } 3 \ L_2}{3 + 4}$	134	156	134.50	102	81*	S
$H2_2$	$\frac{1 \text{ to } 3 + 5_{10} \ L_1 + L_2}{3 + 4 + 5_{20}}$	240	193.50	258.50	208	250	2
H3	$\frac{1}{2}$	44**	115.50	32.50***	88*	70*	
H4	$\frac{L_{10}}{L_{20}}$	272*	239.50	261.50*	224	188	
H5	Syntax $\frac{2 + 3}{1 \text{ to } 5}$	140	132.	132.	146	162	
H6	Syntax $\frac{3}{2}$	114	103	144	86*	100	

Table continued on next page

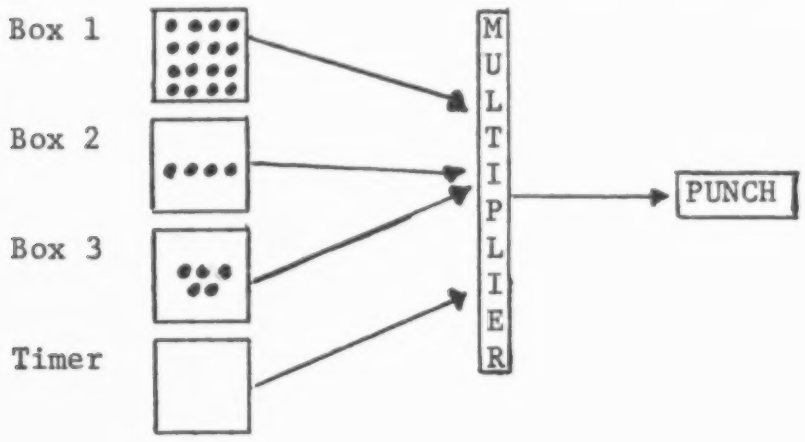
Table 23 - continued

Hyp.	Ratios in terms of cat.	Correlations with Evaluation Variables 1	2	3	4	5	Observ. System
H1	No. of cells accounting for 60% of total tallies	92*	171.50	75.50*	66*	142	
H2	Extended $\frac{1}{d}$ $\frac{(1+2)_2^2}{6+7)_2}$	90*	159.50	96.50*	70*	116	OS1
H3	Rows 8 and 9 $\frac{\text{Columns 1 to 2}}{\text{Columns 6 to 7}}$	250	197.50	277*	242	155	1-Step
H4	Column 23 cells 3_2, 4_1, 4_2, 8_3, 10	148	146.50	112	90*	130	
H5	$\frac{8_{3's} \text{ following } 1_2,\ 2_1,\ 3_2,\ 4,\ 4_2,\ 6_1,\ 8_3,\ 10}{8_{1's} \text{ \& } 8_{2's} \text{ following } 1_2,\ 2_1,\ 2_3,\ 3_1,\ 6_1}$	124	126.50	109.50	70*	156	

Appendix 1

Paper Tape Punch and Data Multiplexor

The data recording system consists of a 50 character-per-second paper tape punch (able to punch standard 8 level paper tape) and associated electronics necessary to gather button press data from up to three stations plus data in the form of a binary number from an interval timer.



Each recording station consists of a keyboard of up to 16 buttons. Whenever an observer pushes a button, the 4-bit code for that button plus a 2-bit station-identifying code is gated to the data multiplexor. The entire code is then either punched on the paper tape, or held until the punch is free, and is then punched. Therefore, data from any station are recorded as soon as possible. If the multiplexor receives a special "terminating code" from any station, it punches this code and then immediately punches the contents of the timer. Thus, when an observer completes an n-tally sequence the time since the last completion can be recorded.

Appendix 2

OS1 One-Step Category Tables for Teachers

OS1 One-Step Category Table for Teacher No. 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	3	0	1	0	0	0	0	0	5	1	0	0	0	0	0	0	0	0
2.	1	11	0	2	0	0	4	2	14	7	2	0	0	0	32	17	8	10
3.	2	1	1	43	7	16	9	8	28	28	2	1	2	0	5	0	0	9
4.	0	1	40	11	4	5	3	7	33	21	0	0	18	25	3	3	0	3
5.	0	2	0	0	71	0	2	4	13	35	0	0	1	209	2	0	0	3
6.	0	0	0	0	0	9	0	2	1	3	1	0	0	17	43	3	0	16
7.	0	3	0	0	1	0	99	2	6	1	2	0	0	0	29	5	1	60
8.	0	4	0	0	1	1	0	42	5	0	3	0	0	0	44	1	0	29
9.	1	33	4	9	56	11	24	13	647	39	0	4	3	0	9	5	9	42
10.	0	4	0	26	49	4	4	2	13	88	5	2	10	33	19	5	0	25
11.	0	1	1	3	0	1	2	2	8	7	8	0	11	7	14	3	1	6
12.	1	3	1	4	2	0	3	3	11	5	4	14	0	0	1	0	0	1
13.	0	1	16	13	0	1	0	0	0	7	8	1	66	0	0	1	0	1
14.	1	4	19	9	145	31	2	14	37	18	6	3	0	17	0	0	0	4
15.	1	27	75	54	0	2	2	11	13	5	33	27	0	0	127	1	0	32
16.	0	4	1	2	0	4	15	0	29	2	0	0	0	0	0	6	0	3
17.	0	0	1	0	0	1	0	0	17	0	0	0	0	0	0	0	6	1
18.	0	11	2	0	6	9	40	18	29	21	1	1	4	2	82	16	1	109

Preceding Category Versus Following Category

Appendix 2 - continued

OS1 One-Step Category Table for Teacher No. 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	2	0	0	0	0	0	3	0	4	4	1	0	0	0	0	0	1	2
2.	0	10	2	0	0	0	3	0	2	6	0	0	0	2	47	3	6	7
3.	2	0	6	90	0	8	14	6	23	22	2	1	1	1	2	2	0	8
4.	0	0	50	52	4	24	18	14	95	57	3	1	5	7	8	1	2	17
5.	0	0	0	0	34	6	0	1	5	27	0	0	5	37	0	0	0	1
6.	1	0	0	0	0	34	1	5	4	2	1	0	0	20	54	0	0	32
7.	0	10	1	1	0	0	96	1	17	6	0	0	0	0	38	3	1	54
8.	1	2	0	2	0	2	1	21	15	3	0	0	0	1	50	0	0	40
9.	3	9	8	27	20	10	44	41	834	72	6	1	4	0	16	3	10	55
10.	4	4	1	8	27	16	15	6	33	242	19	1	46	57	25	4	1	59
11.	0	0	2	3	0	0	0	4	12	20	13	0	30	16	23	0	0	11
12.	0	1	0	0	0	0	1	2	6	4	4	5	0	0	5	0	0	3
13.	1	0	20	14	3	6	1	2	2	15	32	2	142	0	1	0	0	6
14.	0	2	6	38	27	14	0	1	8	28	13	0	3	62	1	0	0	2
15.	1	13	88	116	0	21	3	6	6	13	29	15	0	0	123	2	0	54
16.	0	3	1	0	0	2	2	1	18	5	0	0	1	0	1	2	0	0
17.	0	3	1	0	0	0	0	0	17	1	0	0	0	0	0	0	10	2
18.	2	31	2	7	1	11	26	27	61	41	11	5	10	2	96	16	3	90

Preceding category versus following category

Appendix 2 - continued

OS1 One-Step Category Table for Teacher No. 3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	4	1	0	5	1	2	3	0	5	0	0	0	0	0	0	3	1	0
2.	0	1	1	1	0	0	0	1	1	3	1	0	0	0	32	2	8	0
3.	2	0	0	69	3	12	5	2	27	17	1	0	1	0	4	0	0	3
4.	3	2	29	31	9	115	30	18	114	36	1	0	3	3	2	2	1	14
5.	0	0	0	0	52	3	5	14	35	44	0	0	0	57	2	0	0	6
6.	0	1	0	4	1	34	1	4	13	29	1	0	0	45	111	0	0	23
7.	1	9	0	0	3	1	165	1	24	4	1	0	0	2	63	6	0	66
8.	2	10	0	1	2	1	3	47	19	9	2	0	0	1	54	1	1	30
9.	5	6	3	41	83	28	57	61	768	61	3	0	3	0	24	11	12	51
10.	0	5	1	10	36	30	11	6	30	135	4	0	10	54	18	2	0	33
11.	0	1	0	1	0	1	1	2	17	0	3	0	13	2	71	1	1	4
12.	0	0	0	1	0	1	2	4	3	2	1	0	0	0	4	0	0	1
13.	0	0	4	6	0	0	2	0	3	2	13	0	49	0	0	0	0	1
14.	1	0	27	48	23	12	1	4	40	8	2	0	0	13	0	0	0	0
15.	1	8	81	190	1	14	13	4	18	7	79	19	0	0	98	2	0	13
16.	4	0	0	1	0	2	5	1	19	1	1	0	0	0	1	2	0	2
17.	0	2	0	0	0	2	0	0	18	0	0	0	0	0	1	0	5	2
18.	2	5	0	4	4	9	42	14	63	26	5	0	1	2	63	7	1	35

Preceding category versus following category

Appendix 2 - continued

OS1 One-Step Category Table for Teacher No. 4

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	5	1	3	0	3	0	9	0	11	7	0	0	0	0	2	4	0	3
2.	6	8	0	2	0	2	6	0	7	15	1	1	0	6	18	11	2	4
3.	6	4	1	81	26	21	39	4	26	24	1	0	12	1	3	0	0	0
4.	5	3	50	10	3	54	33	1	27	40	2	0	10	31	7	0	0	2
5.	2	3	0	0	175	7	6	2	2	32	0	0	0	271	0	0	0	8
6.	0	0	0	0	0	3	0	0	0	3	0	0	0	71	62	5	0	22
7.	5	1	0	3	1	0	139	0	23	3	1	0	0	0	80	8	0	97
8.	0	1	0	0	0	0	1	10	3	0	1	0	0	0	10	1	0	8
9.	7	22	9	5	18	5	42	4	370	32	2	0	1	1	3	11	2	35
10.	2	2	0	9	46	1	3	3	17	83	3	0	16	68	9	1	0	36
11.	0	2	4	1	0	0	4	0	3	4	3	0	89	1	61	1	1	3
12.	0	0	0	0	0	1	4	1	0	0	1	0	0	0	0	0	1	0
13.	2	6	35	7	0	0	2	1	1	4	76	0	128	0	1	0	0	1
14.	2	2	60	61	228	55	1	1	14	22	1	0	0	117	0	0	0	0
15.	3	14	86	95	0	2	8	0	7	2	76	6	0	0	74	0	0	17
16.	1	7	1	2	0	6	16	0	17	2	3	0	0	0	0	19	0	4
17.	0	1	0	0	0	0	0	0	3	0	1	1	0	0	0	0	1	0
18.	2	11	0	2	8	9	48	8	38	25	5	1	2	3	60	17	0	73

Preceding category versus following category

Appendix 2 - continued

OS1 One-Step Category Table for Teacher No. 5

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	3	0	1	2	2	1	0	0	6	0	0	0	0	0	0	1	0	9
2.	1	4	0	1	0	0	2	0	7	4	0	0	1	1	7	5	10	12
3.	1	3	1	37	20	10	3	0	10	15	1	0	0	0	3	0	0	8
4.	3	0	23	28	1	2	8	2	22	10	0	0	36	189	8	1	0	7
5.	1	1	1	0	63	6	4	1	7	11	0	0	91	311	2	0	0	5
6.	1	0	0	1	0	118	0	2	3	2	1	0	0	8	110	0	1	30
7.	0	1	0	2	0	0	44	1	8	0	0	0	0	1	21	2	0	10
8.	0	0	0	1	1	0	2	14	11	1	0	0	0	0	20	0	1	18
9.	6	25	4	16	21	14	15	18	958	22	2	0	0	0	6	8	13	53
10.	2	2	0	3	32	5	1	3	16	84	0	1	10	20	6	0	0	30
11.	0	0	0	6	1	1	0	3	2	0	10	0	18	3	70	2	0	9
12.	0	0	0	0	1	3	0	5	5	2	10	1	0	0	2	0	0	0
13.	0	0	15	31	84	0	0	3	2	1	18	1	40	0	0	1	0	4
14.	5	2	44	66	269	93	3	4	16	15	3	2	2	79	0	0	0	15
15.	0	6	21	140	0	9	1	8	11	3	67	24	0	0	105	2	0	20
16.	1	2	0	1	0	3	0	1	14	1	6	0	0	0	1	4	0	2
17.	0	2	0	0	0	0	0	0	24	0	0	0	0	0	0	0	30	2
18.	1	7	2	5	9	12	7	4	58	44	7	0	2	6	56	10	3	40

Preceding category versus following category

Appendix 2 - continued

OS1 One-Step Category Table for Teacher No. 6

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	1	1	1	0	0	0	1	0	6	1	0	0	0	0	1	1	0	2
2.	1	4	0	0	0	1	3	0	3	3	0	0	1	0	33	7	16	12
3.	2	4	9	56	12	33	17	17	54	49	2	0	13	0	6	1	2	19
4.	1	2	69	5	0	5	8	8	20	20	2	0	3	3	4	0	0	13
5.	0	0	0	0	34	2	2	4	2	10	0	0	0	59	0	0	1	6
6.	0	0	0	0	0	24	2	2	1	17	4	0	0	53	40	3	0	17
7.	0	8	0	0	1	1	78	1	29	6	0	0	0	0	39	6	1	70
8.	1	7	1	0	0	1	1	50	6	1	1	0	0	1	43	2	1	43
9.	2	12	9	4	15	14	54	22	602	36	0	0	4	0	8	15	22	83
10.	0	3	3	0	14	22	12	8	16	134	3	0	13	63	18	3	2	41
11.	0	1	2	1	0	1	0	1	2	2	0	0	60	8	35	1	0	2
12.	0	0	0	0	0	2	1	1	2	0	0	0	0	0	0	0	0	0
13.	0	0	30	3	0	0	0	0	2	2	60	0	206	0	0	0	0	0
14.	0	1	49	17	36	31	1	11	8	13	8	2	0	40	1	0	1	12
15.	1	14	113	75	0	5	4	10	6	8	32	3	0	0	93	3	2	14
16.	2	3	0	0	1	6	6	2	24	10	3	0	0	0	1	4	0	3
17.	0	2	0	0	0	0	0	2	39	3	0	0	0	0	0	0	30	4
18.	4	22	10	2	7	15	49	20	80	40	1	1	3	4	61	19	2	95

Preceding category versus following category

Appendix 2 - continued

OS1 One-Step Category Table for Teacher No. 7

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	0	0	0	0	0	0	4	0	2	0	0	0	0	0	1	0	0	6
2.	2	1	0	1	0	0	1	0	3	5	0	0	0	0	3	0	2	5
3.	0	2	0	38	2	8	6	3	15	5	2	0	0	0	3	0	0	5
4.	2	4	27	9	2	63	49	3	27	37	1	0	0	0	5	0	0	5
5.	0	0	0	0	78	0	6	14	6	23	1	0	0	99	1	0	0	3
6.	0	0	0	1	1	33	1	0	3	1	0	0	0	43	61	5	0	14
7.	2	2	0	0	1	1	260	5	48	1	1	1	0	0	107	19	1	199
8.	0	0	0	1	4	0	1	82	31	0	1	0	0	0	29	1	0	71
9.	1	7	0	3	30	3	97	36	446	47	1	0	0	0	11	1	3	98
10.	0	0	0	1	35	14	12	12	26	75	7	0	24	19	6	0	0	56
11.	0	0	1	0	2	1	5	1	8	16	3	0	15	0	12	0	0	3
12.	0	0	0	2	0	1	5	2	8	2	2	0	0	0	4	0	0	1
13.	0	0	10	5	1	1	1	1	0	1	21	0	90	0	3	0	0	1
14.	0	1	0	40	66	17	2	5	18	12	0	0	0	29	0	0	0	1
15.	5	1	48	131	0	9	29	6	15	4	25	24	0	1	136	0	0	26
16.	0	1	0	0	0	5	19	0	6	1	1	0	0	0	0	1	0	2
17.	0	0	0	0	0	0	0	0	6	1	0	0	0	0	0	0	9	0
18.	1	4	3	2	9	7	150	51	116	55	2	2	5	0	78	9	1	126

Preceding category versus following category

Appendix 2 - continued

OS1 One-Step Category Table for Teacher No. 8

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	2	1	0	0	0	0	0	0	2	5	0	0	1	0	1	0	0	0
2.	1	27	0	1	0	1	1	1	14	14	0	0	1	0	31	8	50	12
3.	0	12	6	72	16	30	13	26	38	34	7	0	6	0	10	0	0	17
4.	2	8	123	37	7	17	10	18	75	27	4	0	7	7	6	0	3	7
5.	0	3	2	0	45	4	3	12	10	31	4	0	0	160	18	0	0	10
6.	0	0	0	1	1	44	0	2	2	2	3	0	0	42	60	3	1	26
7.	4	8	1	1	3	0	91	3	14	2	0	0	0	0	48	3	2	19
8.	0	12	0	0	1	0	2	79	19	2	2	0	0	1	106	2	3	28
9.	1	52	11	15	27	9	30	62	479	42	5	1	1	0	15	15	34	46
10.	1	6	0	13	44	37	15	10	27	89	23	0	17	44	10	2	1	27
11.	0	1	4	1	2	1	0	5	5	4	4	0	57	4	73	1	2	5
12.	0	0	0	0	3	0	1	8	5	3	4	0	1	0	5	0	0	1
13.	0	1	12	21	0	0	0	0	1	13	40	3	89	0	0	0	0	1
14.	0	0	32	10	137	27	0	2	5	40	2	0	0	13	0	0	0	3
15.	0	9	91	178	6	1	6	13	13	15	59	25	0	0	120	1	1	23
16.	0	0	2	0	1	1	3	1	27	4	1	0	0	0	1	12	0	1
17.	0	7	1	5	1	1	1	1	75	3	1	0	0	0	0	0	71	8
18.	1	15	2	3	8	14	23	14	34	35	10	2	1	0	57	7	7	66

Preceding category versus following category

Appendix 2 - continued

OS1 One-Step Category Table for Teacher No. 9

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	3	0	1	0	0	1	2	0	2	1	0	0	0	0	0	0	1	2
2.	0	4	0	0	0	2	2	1	2	2	1	0	1	0	32	5	8	12
3.	3	1	7	15	1	35	13	0	16	58	2	0	5	0	3	0	1	37
4.	0	0	93	25	0	19	10	1	26	26	1	0	5	7	10	0	2	23
5.	0	0	0	0	100	9	0	0	5	19	0	0	1	108	3	0	0	2
6.	0	2	0	0	0	82	0	2	1	12	3	0	4	20	87	3	0	40
7.	1	2	0	0	0	0	136	2	3	1	4	0	1	0	53	4	1	43
8.	1	1	0	0	0	0	0	30	3	1	0	1	0	0	22	2	0	14
9.	1	9	10	7	18	11	13	11	525	33	11	1	0	0	16	8	18	71
10.	1	3	0	8	42	27	10	4	16	140	3	0	42	18	23	3	1	50
11.	0	3	1	1	1	4	4	0	16	6	17	0	63	3	156	6	2	10
12.	0	2	0	0	0	3	1	2	7	1	13	0	0	0	3	1	0	1
13.	0	1	23	27	0	2	1	0	2	5	58	1	62	0	0	4	1	3
14.	0	1	19	6	80	15	0	3	15	12	1	0	0	15	0	0	0	4
15.	2	14	37	154	1	13	4	4	13	6	160	28	0	0	104	2	0	29
16.	1	4	1	1	1	5	4	0	20	3	4	0	1	0	4	2	0	3
17.	0	2	0	1	0	0	0	0	31	0	0	0	0	0	0	0	18	2
18.	0	23	5	3	3	28	51	15	61	64	15	3	5	0	55	14	1	86

Preceding category versus following category

Appendix 2 - continued

OS1 One-Step Category Table for Teacher No. 10

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	7	0	0	0	1	1	5	1	7	6	0	0	0	0	3	4	0	4
2.	2	15	2	2	0	2	7	3	7	7	0	0	2	0	40	8	3	11
3.	2	2	4	83	2	10	19	9	22	23	4	1	2	0	7	0	0	5
4.	1	7	69	53	1	83	71	30	62	28	2	3	13	11	12	7	0	16
5.	0	0	0	0	10	0	0	1	1	17	0	0	0	132	2	0	0	1
6.	0	4	0	0	0	28	0	1	4	2	1	0	1	19	77	4	0	40
7.	1	13	0	2	0	0	185	3	11	3	4	1	0	0	101	20	0	121
8.	1	3	0	1	0	1	1	117	18	7	2	0	0	0	95	6	0	51
9.	8	16	1	11	6	6	43	49	414	44	7	1	5	0	24	6	14	42
10.	3	2	0	9	34	9	14	12	17	112	0	1	24	25	30	8	2	42
11.	0	0	1	5	0	2	9	3	11	6	9	0	43	6	90	6	0	11
12.	0	3	0	0	1	0	3	3	5	2	1	1	0	0	3	0	0	2
13.	0	2	18	17	0	0	0	0	4	5	43	0	94	0	0	1	0	1
14.	0	1	18	20	107	9	0	11	7	14	5	0	0	27	0	0	0	2
15.	6	12	81	258	0	11	19	14	14	14	111	16	0	0	193	8	1	50
16.	4	6	0	5	0	9	17	2	23	16	6	0	0	0	3	7	0	9
17.	0	1	0	0	0	0	1	1	19	0	0	0	0	0	0	0	12	1
18.	4	24	1	3	2	10	71	43	51	37	7	0	1	1	128	22	3	140

Appendix 3

Mid-Term Exam

(Examen de Mi-Semestre)

Français 102

Février 1970 nom_____

nombre de points _____ section _____

note _____ professeur _____

I. Comprehension Orale

A. Vous allez entendre six questions. Chaque question est suivie d'une réponse. Si la réponse donnée vous semble possible ou logique, mettez un cercle autour de VRAI. Sinon, mettez un cercle autour de FAUX. (6 points)

1. VRAI FAUX
2. VRAI FAUX
3. VRAI FAUX
4. VRAI FAUX
5. VRAI FAUX
6. VRAI FAUX

B. Vous allez entendre six phrases. Chaque phrase contient un nombre. Ecrivez le nombre que vous entendez dans chaque phrase. (6 points)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

C. Mettez les phrases suivants au passé composé. (6 points)

1.
2.
3.
4.
5.
6.

Appendix 3 - continued

D. Répondez aux questions suivantes, affirmativement ou négativement selon le cas, en employant des pronoms appropriés. N'employez pas la forme nous ni la forme tu dans vos reponses. (6 points)

1. Oui,

2. Non,

3. Si,

E. Répondez aux questions suivantes par des phrases complètes (c'est-à-dire, sujet-verbe-complément). N'employez pas la forme nous ni la forme tu dans vos réponses. (6 points)

1.

2.

3.

II. Partie Ecrite

A. Posez une question sur la partie soulignée de chaque phrase, d'après ce modèle: le livre est rouge. Qu'est-ce qui est rouge? (10 points)

1. Il parlait de la mère de Jacques.
2. Je prends un verre de lait.
3. Cette rue mène à la gare.
4. M. Blanc m'a donné l'adresse.
5. Je connais Yvonne depuis six mois.

B. Complétez les phrases suivantes en mettant un ou deux mots logiques et appropriés dans chaque parenthèse. (8 points)

1. La règle ( ) vous obéissez est nécessaire.
2. M. Dubois est le professeur ( ) j'ai lu la thèse.
3. Il est douteux que nous ( ) contents.
4. Est-il vrai que tu ( ) cela?
5. Ce film est agréable ( ) voir.
6. Est-il difficile ( ) monter l'escalier?
7. J'aime la robe ( ) vous portez aujourd'hui.
8. J'ai ( ) dit cela.

Appendix 3 - continued

C. Complétez les phrases suivantes. Soyez aussi bref que possible. Faîtes attention au temps du verbe que vous employez. (5 points)

1. Si je travaille, je
2. Nous étions déjà partis pour Paris quand vous
3. Téléphone-moi quand tu
4. Il est temps que nous
5. Je jouais du piano pendant que Jeanne

III. Lecture

A. Lisez rapidement les passages suivants et puis indiquez si les commentaires au sujet de ces passages sont VRAIS ou FAUX en mettant un cercle autour de V. ou F. (9 points)

Peut-être que l'église et son enchevêtrement de styles ont donné le ton au quartier. Ici voisinent l'érudition et les plaisirs, la futilité et la philosophie. Ces contrastes existent dans tout le quartier. Tout autour de nous, tu remarques la vie agitée et bruyante d'artistes, d'étudiants, de bohèmes; mais à deux pas d'ici tu trouveras le grand calme de la Place de Fürstenberg où Delacroix installa son atelier et où il mourut.

1. V. F. Ce passage parle de l'atmosphère variée du quartier
2. V. F. L'expression <u>à deux pas</u> veut dire la même chose que <u>à peu près</u>.
3. V. F. L'atelier de Delacroix etait l'endroit ou il travaillait.

Les cinémas du Quartier Latin semblent défier la grande publicité, car ils offrent chaque semaine de bons films qui n'ont pas reçu un accueil favorable de la critique ou du grand public. Quand un film de moins bonne qualité vient interrompre la série, le spectacle passe parfois dans la salle. Les étudiants manifestent leur mécontentement par des réflexiens drôles, ou bien la salle toute entière participe à l'action du film et réagit en même temps que les acteurs. C'est ainsi que le cinéma du Quartier Latin reste une distraction amusante quelle que soit la qualité du film projeté.

4. V. F. D'après le passage, le grand public et les spectateurs des cinémas du Quartier Latin aiment la même sorte de films.
5. V. F. Quelquefois est un synonyme de l'adverbe parfois qui se trouve à la ligne 6.
6. V. F. Les cinémas du Quartier Latin manquent d'intérêt quand un film de moins bonne qualité est projeté.

Peter avait mis quelques jours avant de s'adapter au rythme des repas français. Un déjeuner au restaurant prend souvent d'une heure et demie à deux heures. Le dîner dure davantage et ne commence que vers huit heures et même souvent plus tard. Ceci le changeait naturellement de ses habitudes américaines. J'avais tenu à lui présenter le côté très spécial de la vie française qu'est la cuisine. En France on dit "l'Art culinaire". Peter n'avait pas compris.

7. V. F. Selon le passage, le déjeuner dans un restaurant en France commence à une heure et dure jusqu'à deux heures.
8. V. F. Le dîner dure plus longtemps que le déjeuner.
9. V. F. L'expression j'avais tenu à, veut dire j'avais insisté pour (expression qui se trouve à la ligne 5-7).

B. Lisez les passages suivants et puis répondez en français aux questions qui les accompagnent. Répondez aussi brièvement que possible. Vous n'etes pas obligé de répondre par des phrases complètes. (8 points)

Quel charme, en toute saison, a aussi le Jardin du Luxembourg: Le Palais, que loge le Sénat, présente un exemple parfait du style du Roi Soleil, mais en beaucoup plus intime que Versailles. Autour des bassins où évoluent des flottilles, guidées par une multitude d'enfants, la vie est intense. C'est surtout là l'attraction de ce jardin avec son théâtre de Marionnettes où, parmi les enfants, on peut trouver de nombreux spectateurs adultes, fervents de ce genre de spectacle. La proximité de la Sorbonne et du Quartier Latin permet à de nombreux étudiants de venir se donner rendez-vous dans ce beau jardin et d'y discuter leurs problèmes particuliers ou académiques.

1. Qu'est-ce qui compose des "flottilles" (à la ligne 5)?
2. Donnez deux exemples du style architectural de Louis XIV.
3. De quel spectacle les adultes sont-ils fervents?
4. Donnez un synonyme de l'adjectif particuliers qui se trouve dans la dernière phrase du passage.
5. Pourquoi le Jardin du Luxembourg est-il en particulier un lieu favori de rencontre parmi les étudiants?

La Seine est l'être essentiel dans la vie de Paris. Elle forme un grand arc qui part du sud-est, monte vers le nord, puis redescend vers le sud-ouest. Cet arc divise la ville en deux parties inégales. La rive droite est la plus importante. Les rois de France sont venus s'y installer des le XIV^{e} siècle. Ils ont été suivis par les nobles, les bourgeois riches, les commerçants. Cette partie de Paris est devenue la capitale de l'élégance, du théâtre, des plaisirs. La rive gauche a été et est encore la région du monde intellectuel, judiciaire et ecclésiastique.

6. Où est-ce que les rois de France se sont installés à partir du XIV^{e} siècle?
7. Comment s'appellent les deux bords de la Seine?
8. A quoi se rapporte <u>Elle</u> de la deuxième phrase?

Appendix 4

Questionnaire for Students' Ratings

University of Michigan
Department of Romance Languages

Course: French_____ Date:_____

Do NOT put down your name or your section number.

You are asked to complete this questionnaire in order to help your instructor to evaluate his teaching skills and the course objectives. Please make this evaluation in the same careful and thoughtful manner which you would expect from your instructor in his evaluation of your work.

1. Read carefully the description of each item as well as the three categories before putting down your mark on the line.

2. Take each item separately, i.e., disregarding other items or your total impression of the instructor or the course.

3. Place a check mark anywhere on the line for each item. The place of your mark should represent your evaluation of the instructor or the course.

4. Generally speaking, the middle category represents the average instructor in the department. A check mark to the right of the middle would indicate that your instructor is above average in that item; conversely, a check mark to the left would show that in your opinion he is below average.

5. To help you in evaluating the instructor, you might compare him or her to the instructors of other courses keeping in mind certain differences resulting from a different subject matter.

Part One: Instructor

1. Organization of Class Meetings

noticeable lack of organization	satisfactory organization	exceptionally well organized

2. Instructor's Interest in the Subject

interest seemed mild	strongly interested	intensely interested

Appendix 4 - continued

3. Knowledge of the Subject Matter

adequate for routine class-room	broad and thorough knowledge	knows everything there is to know

4. Does the Instructor Speak French in a Way That You Can Understand?

instructor is regularly too advanced for me	is occasionally too advanced for me	I can always follow readily

5. Clearness of Explanation

explanations usually not clear to me	meaning usually clear to me	meaning always clear to me: explanation complete

6. How Interesting Are the Class Meetings?

usually dull	mildly interesting	high level of interest maintained

7. Freshness of Presentation: The Instructor

follows a stale routine	attempts to bring freshness in presentation	uses a wide variety of techniques

8. Self-Confidence

lack of confidence sometimes disturbs students	good self-confidence	admirable self-confidence

9. Tolerance

unconcerned about student opinion	respects student thought	encourages students to express thoughts

Appendix 4 - continued

10. Is the Instructor Easy to Talk to and Get Help from?

sometimes difficult to get help	available for and helpful in conferences	friendly and especially eager to be helpful

11. Feeling between Instructor and Class

teacher and class indifferent to each other	teacher and class friendly to each other	strong atmosphere of mutual good will

12. How Well Did You Get to Know Your Instructor, and Vice Versa?

very little	about the same as in all other courses	far better than in all other courses

13. Classroom Discussion

usually a waste of time	often of some value	usually highly valuable

14. Promptness in Returning Homework, Quizzes, etc.

never prompt	usually prompt	always prompt

15. Weekly Quizzes

poor sampling of student's mastery of the material	good sampling	very good sampling

16. Use of Quizzes as a Learning Device

students left uncertain of mistakes	usually explains and helps students improve	carefully goes over exams and helps students improve

17. A General Rating of the Instructor. (Consider all the instructors you have had at the University and judge your instructor in comparison to them.

poor	fair	good	better	One of the best

Appendix 5

Observer Tally Sheet

Observation Tally Sheet No. 2_____

Observer_____ Date _____ Period_____ Teacher_____

School_____ Grade_____ No. of Students_____

1. Breakdown of Activities

2. Type of Class

3. Teachers Performance
   - Students participation
   - Pace of class
   - Quality of grammatical explanation

4. Teachers Command of French

5. Teachers Personality
   - Imagination
   - Humor
   - Idiosyncratic Habits

6. General Ambiance

7. Extra Comments

Appendix 6

Table 1

Ratio Findings Based on OS1 Categories

T	1. MN	2. CT	3. CG	4. SS	5. JA	6. PB	7. RS	8. AD	9. FW	10. DW
1	2.76	3.14	2.92	1.72	2.25	1.74	1.90	2.05	1.93	1.67
	1.10	.88	1.21	1.90	1.44	1.16	.93	1.44	.73	1.42
	.85	.54	.83	1.88	.73	.75	1.61	1.11	1.08	1.59
	.88	.64	.91	2.16	.88	.87	1.64	1.27	1.40	1.82
	1.41	4.32	6.21	22.12	4.31	19.33	2.51	5.45	8.61	8.41
	1.13	1.29	1.23	7.72	2.00	1.55	3.05	1.11	1.35	2.18
	.015	.026	.018	.060	.039	.056	.044	.029	.031	.067
	4.64	4.70	1.56	68.87	3.31	10.89	0.14	1.76	4.26	10.23
	3.64	7.20	4.84	85.86	13.13	4.96	35.52	3.93	8.45	9.43
	.083	.099	.102	.104	.090	.084	.114	.074	.131	.160

Appendix 6 - continued

Table 2

Ratio Findings Based on OS2 Categories

T	1. MN	2. CT	3. CG	4. SS	5. JA	6. PB	7. RS	8. AD	9. FW	10. DW
	4.55	5.19	2.04	67.05	13.08	11.40	69.63	1.98	5.50	10.03
	4.56	4.57	1.74	82.23	13.80	19.53	96.30	2.10	4.58	10.99
	4.51	10.13	4.93	43.20	11.52	4.40	31.74	1.65	9.49	7.83
	.34	.27	.28	.30	.38	.26	.23	.29	.36	.31
	3.31	4.06	4.64	3.21	2.56	3.27	4.22	3.07	2.48	3.11
	5.71	6.40	3.08	4.12	8.48	10.21	3.77	78.77	9.36	68.15
	6.20	4.89	2.17	3.01	1.72	1.75	2.26	1.25	1.14	1.41
	.19	.16	.19	.25	.16	.23	.31	.28	.19	.29
	2.77	1.33	1.70	.90	1.06	.97	2.68	2.07	2.32	2.69

Appendix 6 - continued

Table 3

Ratio Findings Based on OS1 Categories, One-Step Frequencies

T	1. MN	2. CT	3. CG	4. SS	5. JA	6. PB	7. RS	8. AD	9. FW	10. DW
Number of cells necessary to account for 60% total tallies	24	25	25	22	13	29	19	32	24	26
1										
2	.87	.69	1.02	.96	1.00	1.12	.81	2.29	.84	3.73
3	2.26	1.94	1.98	2.98	3.88	1.86	2.99	1.74	1.12	2.18
4	.502	.432	.506	.772	.325	.458	.921	.816	.611	1.193
5	.94	1.00	1.81	.42	.28	.72	1.04	1.14	1.31	1.91